V. ENVIRONMENTAL IMPACT ANALYSIS
M. UTILITIES
1. WATER

The analysis of impacts to water supplies presented in this section is based on the Water Master Plan Study (Water Study) prepared by Kimley-Horn and Associates, Inc., which is presented in Appendix R of this EIR.

1. ENVIRONMENTAL SETTING

The ability to supply water is a function of both available resources (which are typically controlled by a utility provider) and conveyance. There are two types of water supply sources: natural resources and reclamation. Water is used for fire control purposes, as well as for drinking (potable), washing, flushing, recreational purposes and other domestic consumption. Reclaimed water is wastewater that has been treated to a sufficient degree for certain types of uses, is non-potable, and must be conveyed in a separate system from potable water to avoid the possibility of direct human consumption. Reclaimed water can be used for irrigation purposes.

a. Existing Conditions

(1) Regional Water System

The Metropolitan Water District (MWD) of Southern California is a consortium of 26 cities and water districts that provide drinking water to nearly 17 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura Counties covering an approximately 5,200-square mile service area. The MWD provides services to both the City of Long Beach and the Central Basin Municipal Water District (CBMWD), the latter of which provides the City of Lakewood with imported water services.

The MWD obtains its water supplies from the Colorado River via the Colorado River Aqueduct and the State Water Project via the California Aqueduct. The MWD treats and delivers an average of 1.7 billion gallons of water per day (gpd) and can deliver more than 2 billion gallons of water on a peak day.

(2) Local Water Systems

(a) City of Long Beach

The Long Beach Water Department (LBWD) provides water services for domestic, irrigation, and fire protection purposes to the City of Long Beach. Water sources include groundwater wells, which comprise approximately 42 percent of the City's total water supply, and imported water from the MWD, which provides approximately 58 percent of the City's water supply. The LBWD's water system includes 25 active groundwater wells (drawing from the Central Groundwater Basin), two MWD connections (LB4 and LB8, located to the west of the project site), four inactive MWD connections (LB1, LB5, LB6 and LB7), two water reservoirs (Alamitos and J. Will Johnson), and a network of water mains and fire hydrants. In fiscal year 1999-2000, the LBWD pumped 24,787 acre-feet and purchased 46,475 acre-feet, for a combined total water supply of 71,262 acre-feet.[408] The average daily demand for the LBWD service area was 63,550,500 gallons of water, with a minimum daily demand of 47,190,000 and a maximum daily demand of 87,210,000 gallons.[409]

The LBWD water system also includes the Long Beach Treatment Plant and Water Quality Laboratory, which has a capacity of 62.5 million gallons per day (mgd). Located at 2950 Redondo Avenue (at Spring Street), the facility treats groundwater for use as potable water throughout LBWD's service area. The Long Beach Water Reclamation Plant (LBWRP), owned and operated by the County Sanitation Districts of Los Angeles (CSDLA) and located in El Dorado Park in the City of Long Beach, provides reclaimed water used for irrigation throughout the City.

The LBWD currently provides water services for domestic use and fire protection to the Long Beach portion of the project site. This area of the site is currently served by a 20-inch diameter cast iron water main that is located within the right-of-way of Carson Street, bordering the north side of the project site. There are two primary pipeline connections along Carson Street which connect the project site to the LBWD's system: (1) a 14-inch pipeline at the western-most segment of Carson Street bordering the site; and (2) a 10-inch fire and a 12-inch domestic water line connection in the central segment of Carson Street. The existing water pipelines within the project site are private. In

[408] *An acre-foot equals 325,850 gallons of water.*

[409] *Statistical Information, Annual Financial Report, 2000, Long Beach Water Department.*

addition, there are several minor emergency connections to the City's system along Lakewood Boulevard.[410]

(b) City of Lakewood

The City of Lakewood Department of Water Resources currently provides water services for the 23-acre portion of the project site in the City of Lakewood. Three sources of water supply are maintained by the City to meet current customer demand: groundwater, surface water, and recycled wastewater. Currently, the City relies on groundwater for 100 percent of its potable water supply, drawing its supply from the Central Groundwater Basin (discussed below). In Lakewood, average daily demand was approximately 8.2 mgd and peak daily demand was 11.0 mgd during fiscal year 1999-2000. The City's water production facilities have the capacity to produce up to 22 mgd for a duration of two days to meet peak demand. The City's 13 water wells can produce up to 16 mgd of water on a daily basis. When necessary, the City of Lakewood can supplement the potable water supply with imported water from the Central Basin Municipal Water District via two connections. The CBMWD is part of the consortium of municipal water districts that obtains its water supply from MWD. The City's 15 cubic feet per second (cfs) water connection to MWD's system, located to the west of the project site and north of LBWD's connections to MWD, can be utilized in times of emergencies or supply shortages. The second MWD connection is located several miles to the northeast of the project site.

The City's Department of Water Resources currently serves the project site via connected 8- and 12-inch mains in Paramount Boulevard running from Carson Street to Cover Street and connecting to a 6-inch potable water line that enters the site at the corner of Paramount Boulevard and Cover Street. This line continues to the airplane wash rack and fire suppression system within the Lakewood portion of the project site. The City of Lakewood does not currently provide reclaimed water service to the project site.

(3) Reclaimed Water System

The LBWD provides reclaimed water services within the City of Long Beach via CSDLA's Long Beach Water Reclamation Plant, located in El Dorado Park in the City. The LBWRP provides approximately 21 mgd of reclaimed water.[411] The City of Long Beach utilizes reclaimed water for irrigation in local parks, golf courses, schools,

[410] *These connections remain closed unless there is an emergency need for additional water supplies.*

[411] *Juan Ovalle, Administrative Analyst, Long Beach Water Department, personal communication, August 30, 2001.*

cemeteries, nurseries, freeways, greenbelts, and other landscaped areas. A 20-inch diameter reclaimed water main is located in the Carson Street right-of-way adjacent to the site. Currently, this line does not extend into the PacifiCenter site and reclaimed water is not utilized on-site.

(4) Groundwater Supplies

As previously mentioned, the Central Groundwater Basin provides groundwater to the Cities of Long Beach and Lakewood. Annually, the Central Groundwater Basin supplies approximately 217,000 acre-feet of potable water to the area (including Lakewood, Long Beach, and surrounding communities). While there are 10 active water supply wells within a one-mile radius of the project site, there are no groundwater wells located on the PacifiCenter site. Although the shallow aquifer underlying the site has documented contamination by historic releases of hazardous materials, this is not a source of drinking water supplies. The deeper aquifers underlying the site have been tested and evaluated and meet water quality standards for drinking water supplies. For further information refer to Section V.G., Water Quality, of this EIR for a discussion of groundwater resources and planned well construction and Section V.E., Hazards and Hazardous Materials, of this EIR (including the Risk Management Plan (RMP) and referenced appendices), for a discussion regarding the quality of groundwater in the project vicinity.

(5) Existing Water Demand

The majority of the existing on-site water demand is provided by the LBWD. At this time, the City of Lakewood Department of Water Resources provides a small amount of water to the site. Since the current land uses on the project site are consistent with a general manufacturing category, the LBWD's sewage generation factors for non-residential uses can be applied to the entire site to estimate the existing water demand.[412] Based on a demand coefficient of 200 gallons per 1,000 square feet for the existing occupied uses, the existing demand flow is estimated to be approximately 75,900 gpd of water.[413, 414]

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[412] *Water demand generally consists of water utilized for human consumption, kitchen, toilet, bath, and irrigation purposes. The portion of this water not used for human consumption or irrigation purposes is discharged to the sewer system. Therefore, water demand can be estimated as a function of wastewater generation using sewage generation factors. Typically, water demand factors are equivalent to approximately 125 percent of sewage generation factors.*

[413] *Until recently, over five million square feet of total floor area existed on-site, in addition to approximately one million square feet of trailers, modular buildings, and other miscellaneous structures historically*

(6) Existing Fire Flows

Aside from daily water demand and peak daily demand, fire flow and pressure in the water system must be adequate for fire protection. Fire flow demand is not typically factored into daily water demand since the use of fire flows is intermittent. Per the Uniform Fire Code (UFC), fire flow requirements are based on building type and floor area and range from 1,250 to 5,000 gallons per minute (gpm) at a pressure of 20 pounds per square inch (psi). Based on a recent hydraulic analysis and field fire flow tests, the existing water system provides sufficient fire flows and pressures to the site. Fire flows are discussed in more detail in Section V.K.2, Fire Protection and Emergency Medical Services, of this EIR.

b. Regulatory Framework

A number of regulations and ordinances regarding water supply and water use apply to the project site and the proposed development. These regulations and ordinances are discussed below.

(1) State Regulations

Title 24 of the California Administrative Code contains the California Building Standards, including the California Plumbing Code (Part 5), which promotes water conservation. Title 20 addresses Public Utilities and Energy and includes appliance efficiency standards that promote water conservation. In addition, a number of State laws listed below require water-efficient plumbing fixtures in structures.

- Title 24, California Administrative Code, Sections 25352(i) and (j) address pipe insulation requirements, which can reduce water used before hot water reaches equipment or fixtures. Insulation of water-heating systems is also required.

present. As of November 2002 when the NOP for the project was circulated, approximately 537,000 square feet of floor area were occupied on-site. After accounting for the remediation program and associated demolition underway, approximately 379,500 square feet of floor area are expected to remain on-site for aviation-related uses within the Boeing Enclave until such uses cease. To provide for a more conservative analysis of the net impacts associated with water, this analysis uses the 379,500 square feet of floor area as the baseline to calculate project impacts.

[414] *Boyle Engineering completed a water demand study for the Long Beach Water Department in 1994. The study estimated that water consumption for the Boeing facility was 341 million gallons per year (mgy), which equates to an approximate average daily flow of 935,000 gallons per day. This demand was based on full occupancy of the site. Water consumption within the Lakewood portion of the site alone was measured at 356 gpd in 2000.*

- Title 20, California Administrative Code, Section 1604(g) establishes efficiency standards that give the maximum flow rate of all new showerheads, lavatory faucets, sink faucets and tub spout diverters.

- Title 20, California Administrative Code, Section 1606 prohibits the sale of fixtures that do not comply with established efficiency regulations.

- Health and Safety Code, Section 17921.3 requires low-flush toilets and urinals in virtually all buildings.

- Health and Safety Code, Section 116785 prohibits installation of residential water softening or conditioning appliances unless certain conditions are satisfied and includes the requirement that water conservation devices on fixtures using softened or conditioned water be installed.

Section 10610 of the California Water Code establishes the "Urban Water Management Planning Act," which addresses several state policies regarding the conservation of water including the policy that urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies. In accordance with the Water Code, municipal water suppliers that serve more than 3,000 customers or provide more than 3,000 acre-feet per year of water must adopt an urban water management plan (UWMP). UWMPs are required to include estimates of past, current, and projected potable and recycled water uses, to identify conservation and reclamation measures currently in practice, to describe conservation measures, and to provide a water shortage contingency plan.

Recent State legislation addressing water supply, California SB 221 (Kuehl) and SB 610 (Costa), effective January 1, 2002 include additional UWMP requirements, which are summarized below.

SB 610 describes requirements for both UWMPs and water supply assessments.[415] Under SB 610, an urban water supplier responsible for the preparation and periodic updating of an UWMP must describe the water supply projects and programs that may be undertaken to meet the total project water use of the service area. If groundwater is identified as a source of water available to the supplier, additional information must be included in the UWMP, such as: (1) a groundwater management plan; (2) a description of the groundwater basin(s) to be used and the water use adjudication rights, if any; (3) a description and analysis of groundwater use in the past five years; and (4) a discussion of

[415] *Codified in the California Water Code, §10910 et seq.*

the sufficiency of the groundwater that is projected to be pumped by the supplier. Similarly, Assembly Bill 901, which was also signed into law by Governor Davis in October 2001, requires UWMPs to contain information specifically pertaining to the quality of water supply sources.

SB 610 also requires that for specified projects that are subject to CEQA, the urban water supplier (e.g., Long Beach Water Department for the Long Beach portion of the PacifiCenter project) prepare a water supply assessment that determines whether the projected water demand associated with a proposed project was included as part of the most recently adopted UWMP. Included in the requirements for a water supply assessment are the identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, and prior years' water deliveries received by the public water system. In accordance with SB 610 and Section 10912 of the Water Code such projects that are subject to CEQA include:

- Proposed residential development of more than 500 dwelling units;
- Shopping center or business establishment employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- Commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- Hotel, motel, or both, having more than 500 rooms;
- Industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- Mixed-use project that includes one or more of the projects specified in this subdivision; or
- A project that would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project (typical water use for 500 dwelling units: one acre-foot per two to three units).[416]

Based on these requirements, the PacifiCenter project is a project as defined by the Water Code Section 10912(a) and (b), and the Long Beach portion of the project is

[416] *Estimated typical water use for a 500-unit project provided by the LBWD in its water supply assessment for the project, included as Appendix S to this EIR.*

therefore subject to SB 610. Based on the Industrial land use designation and M-2 (Heavy Manufacturing) zoning designation of the Lakewood portion of the project site, the analyses in this EIR assume that approximately 360,000 square feet of permitted uses (e.g., light industrial uses) may be located in the City of Lakewood as part of the project, with an estimated 847 employees associated with such uses. As such, the Lakewood portion of the PacifiCenter project does not meet the definition of a project per Section 10912 of the Water Code, and the requirements of SB 610 do not apply.

SB 610 prescribes a timeframe within which a public water system is required to submit the assessment to the lead agency. If the provider determines that water supplies are, or will be, insufficient, plans must be submitted for acquiring additional water supplies.

SB 221 also addresses water supply in the land use planning process and focuses on new large projects in non-urban areas. SB 221 requires written verification from the water service provider that sufficient water supply is available to serve a proposed subdivision or that the local agency make a specified finding that sufficient water supplies are or will be available prior to completion of a project. While SB 221 applies to residential subdivisions of 500 units or more, Government Code Section 66473.7(i) exempts ". . . any residential project proposed for a site that is within an urbanized area and has been previously developed for urban uses, or where the immediate contiguous properties surrounding the residential project site are, or previously have been, developed for urban uses, or housing projects that are exclusively for very low and low-income households." Therefore, while the PacifiCenter project has a residential component, since the site is in an urbanized area and has been previously developed for urban uses, written verification is not required for the proposed project.

Also relevant to water supply, Government Code, Section 65591, Water Conservation in Landscaping Act, requires that the Department of Water Resources prepare a model water efficient landscape ordinance for use by local agencies.

(2) City of Long Beach

In accordance with Section 65591 of the California Government Code, the City of Long Beach is a signatory on the Memorandum of Agreement (MOA) Regarding Urban Water Conservation in California prepared by the California Urban Water Conservation Council (CUWCC). Best Management Practice No. 5 within the MOA is a guide to implementing large landscape conservation programs, which requires signatory water agencies to provide non-residential customers with support and incentives to improve their landscape water use efficiency.

The City of Long Beach Municipal Code, Chapter 12.42 contains landscaping standards intended to improve the physical appearance of the City by providing visual, ecological and psychological relief in the urban environment. The landscaping standards strongly encourage the efficient use of water, and drought resistant, water saving landscapes may be required as a condition of approval for discretionary projects.

The Long Beach Water Department has a current adopted 2000 UWMP that includes the requirements set forth by the California Water Code and SB 610. As set forth by SB 610, if the projected water demand from the project is accounted for in the current adopted UWMP, then the UWMP may be used in the water supply assessment. The Long Beach 2000 UWMP estimates future potable water use of 80,346 acre-feet per year and reclaimed water use of 13,025 acre-feet per year.

(3) City of Lakewood

In accordance with Section 65591 of the California Government Code, the City of Lakewood has adopted Municipal Code No. 93-11. The Code establishes standards and procedures for the design, installation, and management of water conserving landscapes to avoid excessive landscape water demands. These requirements do not apply to any project using reclaimed water. Therefore, since the PacifiCenter project will be using reclaimed water throughout the site for landscape irrigation purposes, the requirements will not apply to the project.

The City of Lakewood has an Urban Water Management Plan that relates the City's water supply to existing and planned land uses within the City. The City's Plan indicates that water demand is expected to stay within the City's allowable pumping and carry-over rights through 2020, and a severe water supply shortage is not anticipated during the 20-year planning period covered in the Plan.[417] In 1995, the City purchased an additional 400 acre-feet of water rights since the last update of the Urban Water Management Plan to increase the reliability of the City's supply.

The City of Lakewood includes a Conservation Element in its 1996 Comprehensive General Plan. In regards to water conservation and preservation, the Conservation Element includes a goal to protect Lakewood's groundwater aquifers from depletion and pollution. In addition, the Conservation Element has two policies aimed at conserving water resources: (1) to comply with the City's adopted goals and policies contained in documents such as the City of Lakewood Water Management Strategic Plan, Water

[417] *Lakewood is allowed to carry over 20 percent of its allowable pumping rights to the next fiscal year or a maximum of 1,873 acre-feet of water.*

Conservation Ordinance, and the Drought Contingency Plan (these plans focus on the conservation and protection of groundwater and overall water supply); and (2) to promote the continued use and expansion of reclaimed water as a method for conserving Lakewood's water resources.[418]

(4) Fire Flow Requirements

The City of Long Beach and the City of Lakewood fire flow requirements are described in Section V.K.2, Fire Protection and Emergency Medial Services, of this EIR. As indicated therein, both cities have adopted the fire flow requirements of the California Fire Code.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The Water Master Plan Study prepared by Kimley-Horn and Associates, Inc. and provided in Appendix R of this EIR calculated existing and future water demand for the project site. Review of documents and files from the Cities of Long Beach and Lakewood, which included basin-wide maps, conceptual plans of the proposed project, and plans of the proposed improvements, was completed, and meetings with members of the respective agency staff were conducted for the preparation of the Water Study. The Water Study provides a worst-case analysis for water demand.

Kimley-Horn performed the analysis of the existing water system with the aid of the Haestad Methods, Inc. Cybernet and WaterCAD water modeling programs. Using these mathematical models of the existing water system, an evaluation of the existing steady-state flow conditions in the existing pressurized pipe system was performed. The existing off-site water systems that will feed into the proposed project were analyzed based on system fire flow capacity, since fire flow requirements are significantly higher than domestic water demand or peak demand for individual uses. Future demand was calculated using maximum square footages for the proposed land uses and demand coefficients provided by the LBWD.[419] The capacity of the proposed on-site water distribution system was analyzed based on its ability to provide the required domestic water and emergency fire flows for the proposed project.

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[418] *City of Lakewood Comprehensive General Plan, November 1996, pg. 4-4.*

[419] *Sewer demand coefficients were used to model water demand for the non-residential components of the project in order to provide a conservative analysis.*

b. Thresholds of Significance

For the purposes of this analysis, impacts to water supply will be considered significant if, after project-related infrastructure improvements:

- The estimated water requirements for the proposed project exceed available water supplies or the capacity of the existing delivery system in conjunction with planned improvements proposed for the project by a substantial magnitude; or
- Any alterations to the water system made necessary by the proposed project reduce or inhibit the capacity of the water system serving the project area.

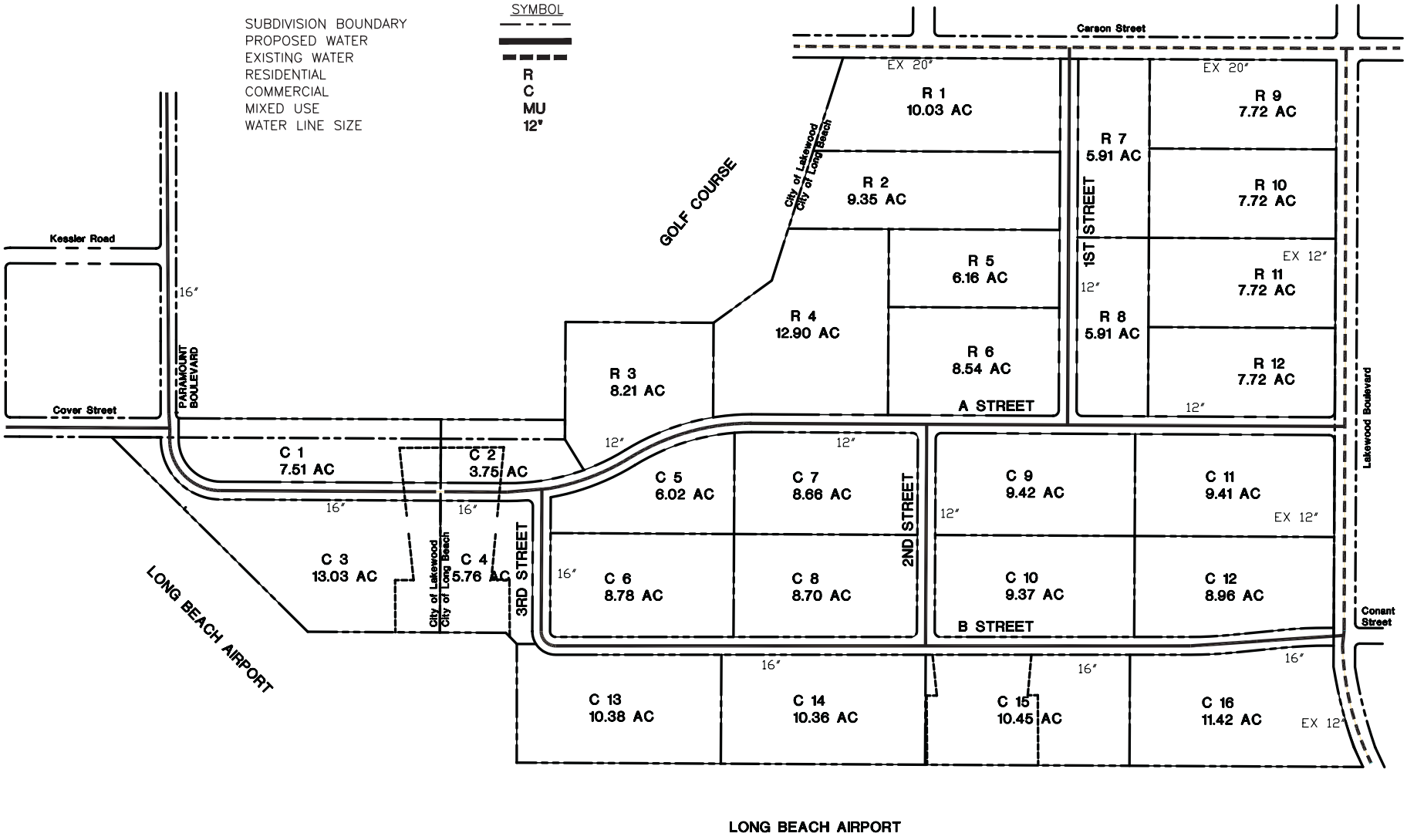
c. Project Features

The proposed project will replace the existing aging infrastructure on-site with a new system that follows the proposed roadways and provides connections to service individual sites within the PacifiCenter property. Existing lines will be abandoned during demolition and new water connections will be constructed.[420] Water line abandonment and new water system connections needed for future development on-site will be made in coordination with the City of Long Beach Water Department, Lakewood Department of Water Resources, Long Beach Fire Department, and the County of Los Angeles Fire Prevention Division, Engineering and Building Plan Check Unit. The LBWD will supply domestic water to the Long Beach portion of the project and reclaimed water to the entire site; the Lakewood Department of Water Resources will supply domestic water to the Lakewood portion of the site.

As shown in Figure 67 on page 741, the proposed domestic water system will include 12-inch and 16-inch diameter water lines. The proposed system will include three connections to existing LBWD water lines, with two on Lakewood Boulevard and one on Carson Street, as well as a connection to the City of Lakewood system at Paramount Boulevard.

The City of Lakewood has determined that the existing off-site infrastructure that will provide water service to the PacifiCenter project will require infrastructure upgrades to support future demand within the 23-acre portion of the site located within the City's boundary. Accordingly, the PacifiCenter project will provide for a new 16-inch water line in

[420] *In addition to demolition that would occur under the project, demolition activities are presently occurring in portions of the project site as part of a soil and groundwater remediation program (refer to Section IV, Overview of Environmental Setting, for a description of the remediation program).*



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Scale Not Provided

Figure 67
Proposed Domestic Water System

Source: Kimley-Horn and Associates, Inc. 2004

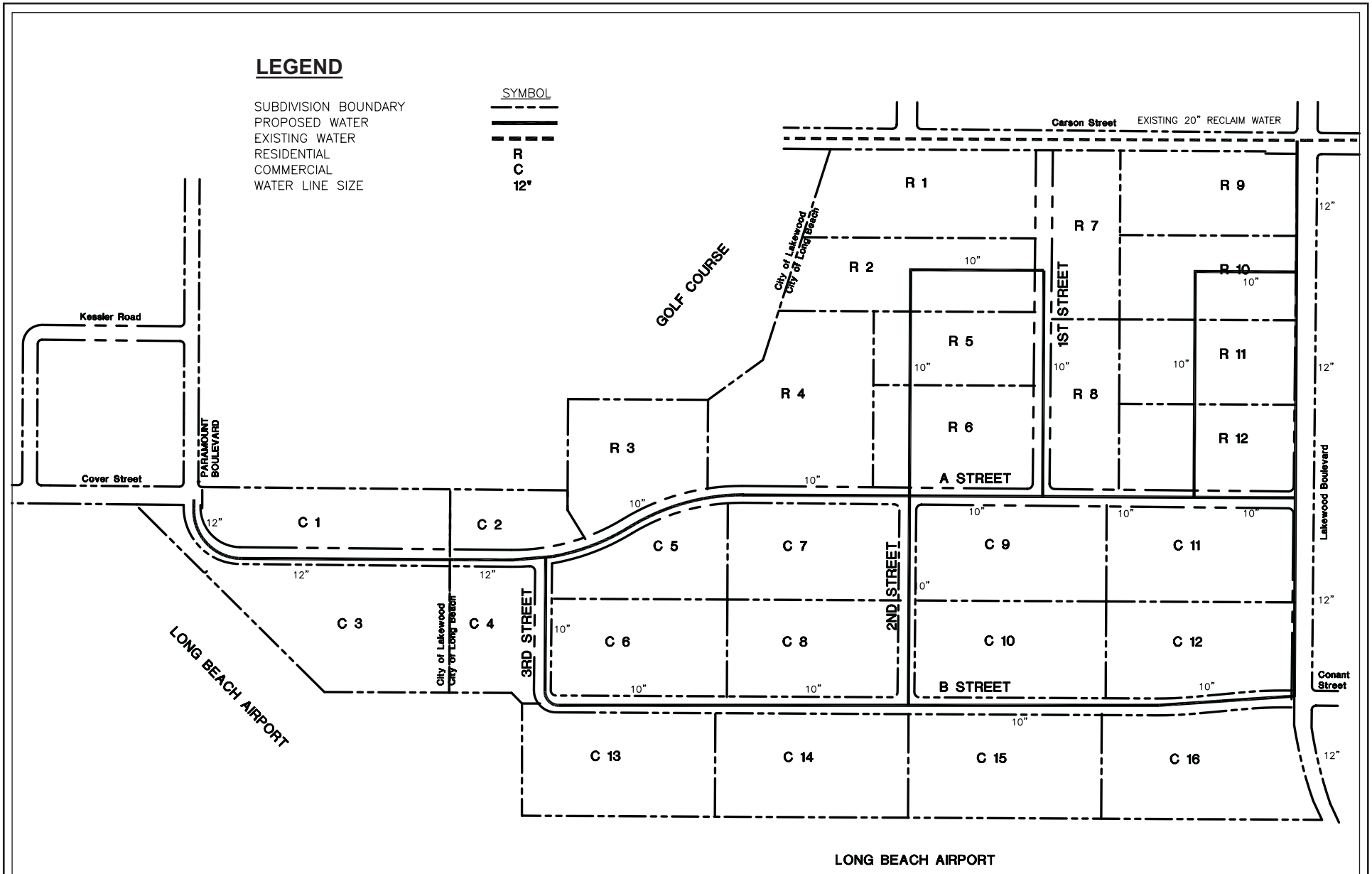
Paramount Boulevard parallel to the City's existing 8- and 12-inch lines in order to accommodate fire flow requirements. This new 16-inch line will connect to an existing 16-inch line at the intersection of Paramount Boulevard and Green Meadow Road. An emergency interconnect between the Lakewood and Long Beach systems is proposed at the city line at the request of the Lakewood Department of Water Resources.[421]

In addition to the on- and off-site upgrades to the potable water system, a reclaimed water system will be installed in the new PacifiCenter streets to allow for future reclaimed water uses on the site. Refer to Figure 68 on page 743 for an illustration of the proposed reclaimed water distribution system. The system will consist of 10- and 12-inch water lines, with one connection to the existing 20-inch LBWD reclaimed water line at Carson Street. Reclaimed water laterals to individual development sites within the commercial and multi-family areas and to common open space areas within the single-family areas within the PacifiCenter property will be sized according to the associated demand. Implementation of the project will not require off-site reclaimed water system improvements, as existing off-site infrastructure will provide adequate flows to the project site. However, due to recent modifications to LBWD's reclaimed water system, on-site pumps may be required for the proposed irrigation facilities in order to deliver adequate water pressure. Future development on the site will be required to connect to the on-site reclaimed water system for landscape irrigation needs. Reclaimed water used for irrigation throughout the site, including the 23-acre Lakewood portion, will be provided by LBWD from the CSDLA's Long Beach Water Reclamation Plant. As described in Section III, Project Description, of this EIR, implementation of the PacifiCenter project will include landscaped parkways and roadway medians, passive recreational areas, and other open space areas. Landscaping within the approximately 51 acres of open space to be provided throughout the PacifiCenter site will be watered using reclaimed water. The use of reclaimed water will reduce the demand for potable water.

As part of the plan check review process, the City of Long Beach Fire Department and the County of Los Angeles Fire Prevention Division will determine the required fire flow for individual structures in those portions of the project site within Long Beach and Lakewood, respectively, based on the type of construction, building size and occupancy.[422]

[421] *Per the Long Beach City Charter, inter-tie connections between the LBWD and other agencies cannot be used for fire flow purposes.*

[422] *The City of Lakewood contracts with the County for fire protection services. Fire protection and potable water service within the Lakewood portion of the project site will be provided by the Lakewood Department of Water Resources, while reclaimed water will be provided by LBWD.*



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Scale Not Provided

Figure 68
Proposed Reclaimed Water System

Source: Kimley-Horn and Associates, Inc. 2003

All new development will be required to comply with State law regarding water conservation measures, including pertinent provisions of Title 20 and Title 24 of the California Government Code regarding the use of water efficient appliances. A water supply assessment will also be made part of the administrative record for the PacifiCenter project, pursuant to Senate Bill 610.

The planned water system improvements will not be limited to a specific development increment, but will be constructed to accommodate future development of the site concurrent with full street improvements. This will ensure that the utility improvements will be constructed in a logical manner and will reduce the potential for additional trenching and resurfacing of streets for subsequent utility improvements. This coordination of street and utility improvements is considered a conservative approach to accommodating the project's utility requirements, as sufficient utility capacity will typically be provided in advance of the actual development-related demand. More specifically, as development occurs within each construction area, determinations will be made as to the specific water infrastructure needed for the surrounding areas of the site, such that an integrated system can be developed in conjunction with construction phasing to provide adequate water flows and pressures for domestic and fire flow service throughout the site. The construction of the planned water system shall conform to the requirements set forth in Section V.E., Hazards and Hazardous Materials, of this EIR, including the Risk Management Plan (RMP), which is designed to protect the long-term health and safety of future residents and employees of the PacifiCenter project, as it relates to potential exposure to contaminated soil and groundwater.

d. Analysis of Project Impacts

(1) Short-Term Construction Water Demand

A short-term demand for water may occur during demolition, excavation, grading and construction activities on-site. These activities will occur incrementally through time (from the start of construction to buildout) and will be temporary in nature. Thus, the demand for water supplies for use in soil watering (fugitive dust control), clean up, masonry, painting, and other activities will also be temporary and intermittent. The demand for water during grading and excavation activities is assumed to be similar to irrigation demand, or approximately 3,000 gallons per acre per day. The additional water demand generated by project construction activities will be offset by the reduction in water consumption from demolition of existing uses. Overall, demolition and construction activities will require minimal water demand and will not be expected to have any adverse impact on the existing water system or available water supplies. Therefore, impacts associated with short-term construction activities will be less than significant.

(2) Long-Term Water Demand

New development on the project site will result in an increase in a long-term water demand for operational uses, maintenance, and other activities on the site. As previously mentioned, potable water used for domestic purposes within the Long Beach and Lakewood portions of the site will be obtained from the City of Long Beach Water Department and Lakewood Department of Water Resources, respectively, and water used for irrigation and landscaping purposes will be provided by LBWD via the proposed reclaimed water distribution system. As indicated in Table 73 on page 746, based on the Water Study, the total average daily potable water demand for the proposed project at full buildout will be approximately 1,407,500 gpd, representing an increase of approximately 1,331,600 gpd when compared with existing conditions.[423, 424] Applying a factor of 1.72 to the average daily demand, the maximum (or peak) day potable water demand will be approximately 2,420,900 gpd.[425] The incremental project-related demand for domestic water will comprise approximately 2.1 percent of the 62.5-mgd water demand (non-peak demand) in LBWD's service area.[426] Additionally, total project-related water demand within the Long Beach portion of the site represents approximately 2.0 percent of LBWD's future average domestic demand estimated in the 2000 Urban Water Management Plan. As described above, the proposed project features and compliance with State laws regarding water conservation measures, including pertinent provisions of Title 20 and Title 24 of the California Government Code, could decrease the overall water demand for the project. Compliance with these measures will reduce the project water consumption estimates for the project at full buildout, thereby reducing the demand on City supplies. As previously mentioned, project landscaping and other open space areas will generate a demand for irrigation water, which will be accommodated by the proposed reclaimed water system described above. Reclaimed water demand was assumed in the Water Study to be the equivalent of two inches of irrigation per week in depth over the entire pervious area.

[423] *The demand for domestic water would increase by an additional 403,400 gpd if potable water were used for irrigation. Therefore, the use of reclaimed water will serve to reduce the demand for potable water by 403,400 gpd.*

[424] *The water demand currently generated by on-site uses is much lower than that experienced in the past due to steady reductions in operations and the associated workforce over the last decade. Comparison of the project's water needs with the average daily flow estimated in the 1994 Boyle Engineering water demand study prepared for LBWD, for example, yields a net increase in daily water demand of approximately 472,500 gpd.*

[425] *Maximum daily flow, which is calculated by applying a factor of 1.72 to the average daily demand, differs from peak hourly flow, which is based on a factor of 2.31 (and measured in gallons per minute). Both types of peak flows are presented in the Water Study in Appendix P to this EIR. The maximum day demand represents a 24-hour average of the three maximum days of water use during the year. In Long Beach the maximum day typically occurs in July, August, or September.*

[426] *The 2.1 percent represents the incremental daily increase associated with the project divided by the City's daily use (1,331,600/63,550,500 gpd).*

Table 73

ESTIMATED PROJECT DOMESTIC WATER DEMAND

Proposed Land Uses [a]	Floor Area (sf) or Unit [a]	Factor	Projected Water Demand (gpd)
Commercial [b]	3,300,000 sf	200 gal/1,000 sf/day	660,000
Hotel	400 rooms	150 gal/room/day	60,000
Housing [c]	2,500 units	110 gal/person/day [d]	687,500
Average Daily Demand Total			**1,407,500**
Maximum (Peak) Daily Demand Total [e]			**2,420,900**

[a] *The land uses listed and their associated floor areas do not correspond directly to the proposed land use categories (Commercial and Housing), described in Section III, Project Description. Floor areas reflect maximum allowable square footages for each land use to demonstrate a "worst case" development scenario in terms of water demand.*

[b] *Commercial uses include office, R&D, light industrial, and aviation-related uses. For purposes of this analysis, light industrial uses are assumed to comprise 100 percent of the Commercial area in order to present a conservative or worst-case scenario relative to wastewater generation. In addition to the total proposed 3.3 million square feet of commercial uses, up to 400 hotel rooms (listed separately in the table) may be developed.*

[c] *Residential occupancy is assumed to be 2.5 persons per dwelling unit. This is a standard number and provides a conservative analysis since the average household size for proposed on-site units is estimated to be less.*

[d] *This factor was used in lieu of LBWD's standard factor of 140 gal/person/day due to the provision of a reclaimed water system.*

[e] *Maximum Daily Demand = 1.72 * Average Daily Demand.*

Source: Kimley-Horn and Associates, Inc., December 2003.

As shown in Table 74 on page 747, the total (average) reclaimed water demand for the PacifiCenter project will be approximately 402,715 gallons per day. The average daily demand is based on a 24-hour irrigation period. In contrast, the maximum (peak) daily demand for reclaimed water is based on an 8-hour nighttime irrigation period, scheduled three times per week. Under these conditions, the project will generate a maximum daily reclaimed water demand of approximately 939,669 gpd.[427] The use of reclaimed water for irrigation reduces the project demand for potable water from the City's water supply. The total project-related reclaimed water demand throughout the site represents approximately 3.5 percent of LBWD's future average reclaimed water demand estimated in the 2000 Urban Water Management Plan.

Based on the above and in consultation with the City of Long Beach Water Department and the City of Lakewood Department of Water Resources, the Cities will have adequate water supplies to accommodate the demand for potable water that will be

[427] *The estimated peak demand was used for the sizing of the reclaimed water distribution system.*

Table 74

ESTIMATED PROJECT RECLAIMED WATER DEMAND

Land Use Categories	Green and Open Space Areas (sf)	Projected Reclaimed Water Demand (gpd) [a]
Commercial	928,483	168,666
Housing	852,819	154,921
Park/Setbacks/Rights-of-Way	435,600	79,130
Average Daily Demand Total [c]		**402,715**
Maximum (Peak) Daily Demand Total [b,c]		**939,669**

[a] *Demand is based on two inches of irrigation per week in depth over the entire pervious area.*

[b] *Maximum Daily Demand is based on an 8-hour nighttime irrigation period, scheduled three times per week.*

[c] *Numbers may not sum exactly due to rounding.*

Source: Kimley-Horn and Associates, Inc., December 2003.

generated by full buildout of the proposed project.[428] The LBWD has determined that it also has sufficient supplies to provide the approximately 402,715 gpd demand for reclaimed water estimated for project buildout, as the LBWD currently only utilizes approximately one-quarter of the total amount of reclaimed water produced.[429] On-site water systems will be designed and constructed to provide adequate water service and flows for the project site, and project implementation will not inhibit the capacity of the systems serving the surrounding project area. On the contrary, the proposed 16-inch water line within Paramount Boulevard will serve to improve fire flow capacity to surrounding off-site properties within the City of Lakewood. Proposed development will comply with all applicable State laws and codes, including Titles 20 and 24 of the California Administrative Code. With regard to City standards and policies, the project will be implemented in accordance with the Memorandum of Agreement Regarding Urban Water Conservation in California, of which the City of Long Beach is a signatory.[430]

In accordance with SB 610, a water supply assessment has been prepared for the PacifiCenter project by the Long Beach Water Department (dated December 19, 2002)

[428] *Kimley-Horn and Associates, Inc., "Water Master Plan Study," December 2003. Determination based in part on consultation with Matt Lyon at LBWD.*

[429] *Juan Ovalle, Administrative Analyst, Long Beach Water Department, personal communication, August 27, 2001.*

[430] *The City of Lakewood is not a signatory.*

and is included as Appendix S to this EIR.[431] Although the water supply assessment requirement is only triggered for the Long Beach portion of the project, the assessment demonstrates that the projected water demand for the entire project is within the 20-year water demand growth projected by LBWD's UWMP. Specifically, as stated in the water supply assessment, the UWMP projected an estimated water demand in the City of 77,722 acre-feet for the fiscal year ending September 30, 2002 (including both potable and recycled water). The actual demand for water was 75,232 acre-feet, yielding an overestimate of 2,490 acre-feet of demand.[432] The additional 2,490 acre-feet of demand represent a portion of the demand related to growth, of which the project can be considered a part. The water supply assessment further demonstrates that the projected water supplies available during the normal, single-dry, and multiple-dry water years included in the 20-year projection will meet the projected water demand associated with the project as well as existing and other planned future uses of LBWD's system. The Long Beach Water Department 2000 UWMP projects an increase in water use as development occurs in the City over time.

The LBWD water supply assessment was prepared in December 2002 and was based on a previous project description. That project description contemplated the use of "equivalency factors," which would have allowed for the exchange of residential and commercial uses. The equivalency factors could have resulted in a final development that fell within the range of two scenarios: a "commercial intensive" scenario, with 2,200 dwelling units and 3.3 million square feet of commercial uses, or a "residential intensive" scenario, with 2,500 dwelling units and 3.05 million square feet of commercial uses. Each of these scenarios also included 400 hotel rooms. The water supply assessment evaluated these two development scenarios and concluded that sufficient water supplies for the project would be available. The analysis contained in the water supply assessment was conservative, in that it assumed that all of the proposed housing would consist of single-family units and that potable water would be used for irrigation purposes. Consequently, the water supply assessment states that the project-related water demand estimates evaluated therein ". . . may be on the high side."[433]

Kimley-Horn and Associates, Inc. has prepared a Water Master Plan Study (refer to Appendix R of this EIR) based on the revisions to the project, which no longer contemplate

[431] *As indicated previously, the Lakewood portion of the PacifiCenter project does not meet the definition of a project per Section 10912 of the Water Code, and the requirements of SB 610 do not apply.*

[432] *Long Beach Water Department, Water Availability Assessment prepared for the PacifiCenter@Long Beach, December 19, 2002.*

[433] *Long Beach Water Department, Water Availability Assessment prepared for the PacifiCenter@Long Beach, December 19, 2002, page 5.*

the use of equivalency factors or a specific range of development scenarios. Based on an updated project description, the domestic water demand estimates in the Water Study and this EIR are somewhat greater than the domestic potable water demand estimates provided in the water supply assessment (referred to therein as "base" domestic water demand).[434] However, because the proposed project will involve the use of reclaimed water for irrigation (i.e., a reclaimed water system is proposed as part of the project and associated mitigation is provided in Mitigation Measure V.M.1-3 below), the total water demand assumed in the water supply assessment (i.e., "base" domestic demand plus additional potable water for irrigation) is higher than the total estimated domestic water demand contained in the Water Study and this EIR. As such, the most current water demand estimates for the project still fall within the range projected by LBWD in the water supply assessment. Therefore, although based in part on some modified project characteristics, the conclusions of the water supply assessment are still accurate.

Moreover, the water supply assessment further ". . . overestimates the impact of the project," because it relies heavily on data provided in the City's 2000 UWMP, which did not account for a reduction in baseline water demand associated with the discontinuation of existing uses on the project site.[435] After the 2000 UWMP was prepared, most of the uses on the project site were discontinued, along with much of the associated water consumption. As a result, the water supply assessment's baseline assumptions are overstated to some extent.

As discussed above, water provided by LBWD is treated at the 62.5-mgd Long Beach Treatment Plant and Water Quality Laboratory. This facility has been designed to treat the entire water flow from the LBWD water supply. Thus, as the City of Long Beach will have adequate water supplies to accommodate the demand for water generated by the project, this facility will be adequate to serve the project demand. Therefore, the project will not require the construction of a new water treatment facility or expansion of an existing facility, and no significant impacts will occur.

Based on the above analysis, project impacts to water services will be less than significant.

As discussed in Section V.K.2, Fire Protection and Medical Services, in this EIR, water system capacity within the Cities of Long Beach and Lakewood is adequate to handle fire flow requirements associated with development of the PacifiCenter project,

[434] *Ibid. Refer to the table at the bottom of page 6.*

[435] *Long Beach Water Department, Water Availability Assessment prepared for the PacifiCenter@Long Beach, December 19, 2002, page 16.*

including the portion of the site located in the City of Lakewood. The proposed on-site water system will maintain adequate flows and pressure to meet required criteria and serve the project site.

3. CUMULATIVE IMPACTS

The cumulative consequences of growth on water distribution infrastructure and water supplies should be considered in separate geographic contexts. Cumulative impacts on water distribution infrastructure are considered locally in the context of anticipated developments expected to utilize the same elements of the water distribution system. In the case of the PacifiCenter project, related development immediately surrounding the project site was evaluated. Only a few related projects (e.g., Related Project Nos. 6, 12, and 44) have been identified in the immediate project locale that may use segments of the water distribution system serving the PacifiCenter site. Given their size and nature, none of these related projects is expected to use substantive existing or anticipated capacity. Furthermore, the 16-inch water line within Paramount Boulevard proposed as part of the PacifiCenter project will serve to improve capacity to surrounding off-site properties within the City of Lakewood. Should developments be proposed in the future which exceed local infrastructure capacity, the development(s) will be expected to make appropriate infrastructure upgrades. Therefore, no substantive cumulative impacts on local water distribution infrastructure are anticipated in conjunction with the proposed project.

As mentioned above, the water demand generated by the project will be served by both the City of Long Beach and City of Lakewood. Therefore, the cumulative implications of growth upon water supplies should be evaluated locally since Long Beach draws over 40 percent of its water supplies and Lakewood currently draws all of its water from local groundwater sources, as well as regionally since the City of Long Beach also obtains a large portion of its potable water supplies from the MWD, which functions as the regional water purveyor.

Locally, all of the identified related projects located in the City of Long Beach can be conservatively expected to generate an average daily water demand of approximately 2.0 mgd or roughly 150 percent of the net increase associated with the proposed project. Cumulatively, PacifiCenter and all identified related projects in the City of Long Beach will then increase total existing Long Beach domestic average daily water demand by as much as a combined 6 percent of total City demand. Furthermore, the LBWD UWMP projects water demand through the year 2025 based on population growth projections, trends, and other factors. Based on UWMP data, the water supply assessment states that the projected water supplies available during the normal, single-dry, and multiple-dry water

years as included in the 20-year projection will meet the projected water demand associated with the project as well as existing and other planned future uses of LBWD's system. It is concluded that cumulative water demand in the City of Long Beach will not exceed foreseeable accessible water supplies. This conclusion is reinforced with the knowledge that Long Beach may exercise its right to supplement current supplies with additional water from the MWD, if necessary.

The identified related projects located in the City of Lakewood are conservatively estimated to generate an average water demand of approximately 110,000 gpd, or approximately 117 percent of the demand associated with future project development in the Lakewood portion of the site. Cumulatively, PacifiCenter and the identified related projects in the City of Lakewood will then increase total existing domestic average daily water demand by a combined 2.5 percent of the City's total demand. Based on its current average daily demand (8.2 mgd) relative to its total production capacity (22 mgd), and considering that the City expects water demand to stay within the allowable pumping and carry-over rights through 2020, the City of Lakewood Department of Water Resources has sufficient available water supplies to meet this increased demand. Furthermore, similar to the City of Long Beach, Lakewood may supplement water supplies with additional water from the CBMWD (which obtains its water supply from the MWD), on an as-needed basis.

Regionally, it is important to consider future growth within the MWD's service area. The MWD's service area population is expected to grow by approximately 43 percent to some 22.3 million people by the year 2020. The Southern California Association of Governments (SCAG) projects residential population and employment growth throughout much of the MWD's service area. As discussed in Section V.J.1, Employment, and Section V.J.3, Population, of this EIR, estimates of the project's employment and residential population growth fall within sub-regional as well as regional forecasts made by SCAG. As SCAG forecasts are consistent with MWD's own projections, it can be concluded from a regional cumulative perspective that the project is consistent with regional planning for future water supplies. In addition, in a letter dated July 17, 2003, the MWD reiterated their water availability predictions for the proposed project. In summary, the MWD defended the effectiveness of conservation and local projects in reducing demands, water supply reliability and availability, and increased capabilities to make available replenishment deliveries to its member agencies and to refill its system storage.

The MWD's Integrated Resource Plan has targeted increased conservation, recycling, storage, and water transfers to help ensure the region's future water supply and reduce dependence on imported water from the Colorado River and Northern California. In anticipation of such growth, the MWD has already taken measures to acquire additional underground storage, aquifer, and reservoir space. Recent legislation, such as SB 610,

will help regulate future development to ensure that adequate water service can be provided with existing and future water supplies. In addition, similar to the proposed project, any future projects will likely include specific features designed to reduce impacts on water supply. In addition, future projects will be evaluated on an individual basis to determine appropriate measures that address additional demand. Therefore, no significant cumulative impacts on water services will occur in conjunction with project implementation.

4. MITIGATION MEASURES

Based on the analysis provided above, development of the proposed project will not result in any significant impact to water services. However, the following mitigation measures are proposed to ensure implementation of the project features described above.

V.M.1-1 Water line abandonment, new water system connections, and the construction of on-site infrastructure needed for future development on-site shall be completed in accordance with the requirements of the City of Long Beach Water Department, City of Lakewood Department of Water Resources, Long Beach Fire Department, and the County of Los Angeles Fire Prevention Division, Engineering and Building Plan Check Unit.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Water Department, Lakewood Department of Water Resources, Long Beach Fire Department, and County of Los Angeles Fire Prevention Division, Engineering and Building Plan Check Unit

Monitoring Agency: Long Beach Water Department, Lakewood Department of Water Resources, Long Beach Fire Department, and County of Los Angeles Fire Prevention Division, Engineering and Building Plan Check Unit

Action Indicating Compliance: Approval of Plans/Issuance of Building Permits

V.M.1-2 The installation of new domestic water infrastructure shall be coordinated with PacifiCenter development and on-site street improvements.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Water Department and Lakewood Department of Water Resources,

Monitoring Agency: Long Beach Water Department and Lakewood Department of Water Resources,

Action Indicating Compliance: Approval of Plans/Issuance of building permits

V.M.1-3 The proposed on-site reclaimed water distribution system shall be constructed in accordance with the requirements of the Long Beach Water Department. The installation of new reclaimed water infrastructure shall be coordinated with PacifiCenter development and on-site street improvements.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Water Department

Monitoring Agency: Long Beach Water Department

Action Indicating Compliance: Approval of Plans/Issuance of building permits

V.M.1-4 Project development shall comply with State law regarding water conservation measures, including pertinent provisions of Title 20 and Title 24 of the California Government Code regarding the use of water efficient appliances.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Water Department and Lakewood Department of Water Resources,

Monitoring Agency: Long Beach Water Department and Lakewood Department of Water Resources,

Action Indicating Compliance: Approval of Plans/Issuance of building permits

5. IMPACTS AFTER MITIGATION

The existing infrastructure of the Long Beach Water Department is adequate to provide both domestic and fire water demands for the Long Beach portion of the project. Additionally, with the proposed off-site water line improvements along Paramount Boulevard, the Lakewood water system will be adequate to provide both domestic and fire water demands for the Lakewood portion of the project. As such, no significant impacts will result from project implementation.

V. ENVIRONMENTAL IMPACT ANALYSIS
M. UTILITIES
2. SEWER

This section is based on the Sewer Master Plan Study (Sewer Study) prepared by Kimley-Horn and Associates, Inc. and presented in Appendix T of this EIR.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

(1) Regional Sewer System

The County Sanitation Districts of Los Angeles County (CSDLA) are a confederation of independent special districts that provide sewer service to an area that encompasses 78 cities and unincorporated areas within the County. The CSDLA maintains and operates 1,300 miles of main trunk sewers and 11 wastewater treatment plants that convey and treat approximately 530 million gallons of raw sewage per day.

Within the vicinity of the project site, CSDLA maintains the Joint Outfall "A" Unit 1A, North Long Beach Interceptor Trunk Sewer (hereafter referred to as the Interceptor Trunk Sewer), which runs in a north-south direction and is located along Clark Avenue. This 30-inch diameter Interceptor Trunk Sewer has a capacity to accommodate 9 million gallons per day (mgd). All sewage flows from this sewer line are treated at either the Long Beach Water Reclamation Plant (LBWRP) or the Joint Water Pollution Control Plant (JWPCP), both of which are owned and operated by the CSDLA. The LBWRP is located southeast of the project site in El Dorado Park within the City of Long Beach. Providing primary, secondary, and tertiary treatment for a wastewater service population of 250,000 people, this plant has a design capacity of 25 mgd and processes an average flow of 18 mgd.[436] Reclaimed water from the LBWRP is used for landscape irrigation purposes within the City of Long Beach. Located in the City of Carson, the JWPCP provides primary and partial secondary treatment for wastewater and serves approximately 3.5 million people. The JWPCP treats an average flow of 326.5 mgd and

[436] *Flows as of March 2003, as reported by the CSDLA; refer to the Sewer Study.*

has a design capacity of 385 mgd.[437] The County of Los Angeles Sanitation District Number 3 (CSDLA No.3) serves the portion of the project site within the City of Lakewood.

(2) Local Sewer System

The City of Long Beach Water Department (LBWD) provides sewer service for the City of Long Beach. Maintaining over 760 miles of sewer mains ranging from 4 to 30 inches in diameter and 29 pump stations, the LBWD collects approximately 40 mgd of raw sewage from residential and industrial sources. The LBWD pipelines collect sewage flows from individual developments and convey the flows for treatment to trunk lines and into regional interceptors for treatment at the LBWRP or JWPCP. A stop valve, which is located at the intersection of Clark Avenue and Atherton Street, is electronically controlled allowing sewage to be conveyed to either facility. The 238-acre portion of the project site located within the City of Long Beach is located within LBWD Sewer Service Area 9.

The local sewer system includes two pipelines that serve the project site. The first pipeline is a private, 15-inch sewer owned by the Boeing Company that extends from its connection with the Interceptor Trunk Sewer at the intersection of Conant Street and Clark Avenue, upstream to the intersection at Conant Street and Lakewood Boulevard. The existing system upstream of this point is the private Boeing system. This 15-inch sewer only carries flows from the Boeing property. The second pipeline that serves the project site extends from the Interceptor Trunk Sewer at the intersection of Conant Street and Clark Avenue to the west where it intercepts flow from areas within both Long Beach and Lakewood. This public pipeline ranges from 15 to 21 inches in diameter and connects to the existing on-site sewer system at five locations. Portions of this line are owned respectively by the City of Long Beach and CSDLA.

The existing private sewer system within the PacifiCenter site consists of pipelines that range from 6 to 15 inches in diameter. Generally, these pipelines run in either a north-south direction or an east-west direction. Flows from the eastern portion of the site are conveyed to the private 15-inch pipeline that solely serves the PacifiCenter site. Flows from the western and central portions of the site are conveyed to the 15- to 21-inch public pipeline.

Average sewage flows for existing conditions were estimated using the City of Long Beach standard of 223 gallons per 1,000 square feet per day for light industrial land

[437] *Flows as of March 2003, as reported by the CSDLA; refer to the Sewer Study.*

uses.[438] Based on this standard, an average sewage flow of approximately 84,000 gallons per day (gpd) (0.08 mgd or 0.13 cubic feet per second (cfs)) and a peak flow of 0.28 cfs (0.18 mgd) are generated under existing conditions.[439]

b. Regulatory Framework

LBWD and CSDLA provide sewer services to the PacifiCenter site. All infrastructure improvements necessary as part of the PacifiCenter project will be constructed in accordance with applicable LBWD and CSDLA requirements. As specified in the LBWD Rules and Regulations, all sewer lines must be at least 8 inches in diameter. Main sewer lines less than 18-inches in diameter are required to accommodate design flows of one-half of the pipeline size, and lines 18-inches in diameter or larger are required to accommodate design flows of three-quarters of the pipeline size. All main sewer lines must also be designed to provide a minimum velocity of two feet per second. If implementation of this design criterion is not feasible, LBWD approval is required. In addition, the project will be required to pay fees (i.e., sewer capacity charges) for all new connections to the public sewer system. Refer to the Sewer Study, included as Appendix T of this EIR, for information about LBWD Rules and Regulations regarding wastewater discharge standards.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The Sewer Study prepared by Kimley-Horn and Associates, Inc. was based on a review of documents and files, including basin-wide maps from the Cities of Long Beach and Lakewood and CSDLA, conceptual plans of the proposed project, and plans of the proposed improvements.

Existing wastewater flows and the capacity of the LBWD and CSDLA sewer system were based on information provided by the LBWD and CSDLA. Estimated sewage flows

[438] *Until recently, over five million square feet of total floor area existed on-site, in addition to approximately one million square feet of trailers, modular buildings, and other miscellaneous structures historically present. As of November 2002 when the NOP for the project was circulated, approximately 537,000 square feet of floor area were occupied on-site. After accounting for the remediation program and associated demolition underway, approximately 379,500 square feet of floor area are expected remain on-site for aviation-related uses within the Boeing Enclave until such uses cease. To provide for a more conservative analysis of the net impacts to wastewater facilities, this analysis uses the 379,500 as the baseline to calculate project impacts.*

[439] *Based on the peak flow formula* $Q_{peak} = 2.04 * (Q_{Average})^{0.983}$ *where Q is sewage flow in cfs.*

generated by the PacifiCenter project were determined based on LBWD standards and factors. The remaining capacity of the existing sewer system was analyzed to determine if the system could accommodate the projected sewage volume generated by the proposed project. In the event that any capacity deficiencies were identified, appropriate infrastructure or upgrades were incorporated into project design.

Manning's equation for pipe flow was used to determine the capacity of the main sewer network serving the project site, as discussed in the Sewer Study. The estimated average sewage flow is used for assessing the capacity of systems such as treatment plants that are sized based on total volume of flow. The estimated peak sewage flow represents the maximum momentary load placed on sewage facilities, and is used for sizing sewer pipelines, pump stations, and other sewage facilities. Using the City of Long Beach criteria (as derived from the Los Angeles Sewer Design Manual), the calculations to determine new sewer pipeline capacity and size utilized a depth-to-diameter (D/d) design criterion of 0.75 for pipelines 18 inches in diameter or larger, and a D/d of 0.50 for pipelines less than 18 inches in diameter.

b. Thresholds of Significance

For the purposes of this analysis, impacts to sewer capacity will be considered significant if, after project-related infrastructure improvements:

- The increase in project-generated wastewater will exceed the existing or planned capacity of the wastewater delivery system and/or wastewater treatment plant(s) serving the project site by a substantial magnitude;

- Alteration to existing infrastructure will substantially reduce or inhibit the ability of the sewer system to serve the project site or the area surrounding the project site;

- Wastewater treatment requirements of the applicable Regional Water Quality Control Board would be exceeded;

- The project would require the construction of a new wastewater treatment facility or expansion of an existing facility, the construction of which could cause significant environmental effects; or

- The wastewater treatment provider that serves the project determines that there is not adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

c. Project Features

A new sewer system for the PacifiCenter project will be constructed to provide adequate sewer service for future development (i.e., new pipes will be sized to accommodate buildout at a particular location rather than sized to solely accommodate a specific development increment). This will ensure that improvements are constructed in a logical manner and will reduce the potential for additional trenching and resurfacing of streets for subsequent sewer system improvements. The proposed sewer system will consist of public pipelines ranging from 8 to 21 inches in diameter. As shown in Figure 69 on page 759, sewer lines will be located in the proposed roadways. Connections to individual sites within the PacifiCenter property will be included in the proposed system. As shown in Figure 69 on page 759, the on-site sewer system will connect to the existing 15-inch and 21-inch off-site sewer lines at the intersection of Conant Street and Lakewood Boulevard. With approval by LBWD, the existing private 15-inch line will be transferred to LBWD to increase capacity within the public sewer system. Appropriate documentation and upgrades will be undertaken, as necessary, in association with the transfer. In addition, within the project site boundary, portions of the existing 15- to 21-inch line in Conant Street west of Lakewood Boulevard will be replaced.

The proposed system within the City of Long Beach portion of the site will be designed in accordance with the City of Long Beach design standards for all pipelines located within the City of Long Beach. Similarly, infrastructure improvements located within the Lakewood portion of the project site will meet applicable Los Angeles County Department of Public Works (LACDPW) and CSDLA requirements. Sewer facilities located within the Lakewood portion of the site (approximately 1,000 feet in length) will be maintained by CSDLA No. 3. Associated wastewater flows will discharge into sewer facilities located within the Long Beach portion of the project site that are owned and maintained by the City of Long Beach. During the design phase of the on-site sewer line improvements, a new sewer manhole will be located at the boundary between the Cities of Long Beach and Lakewood as a point of demarcation. In addition, any food service uses located within the Lakewood portion of the project site will implement a proper grease control program. As discussed above, all sewer lines will be at least 8 inches in diameter. In addition, main sewer lines less than 18-inches in diameter will be designed to accommodate flows of one-half of the pipeline size, and lines 18-inches in diameter or larger to accommodate flows of three-quarters of the pipeline size. All main sewer lines will be designed to provide a minimum velocity of two feet per second. If implementation

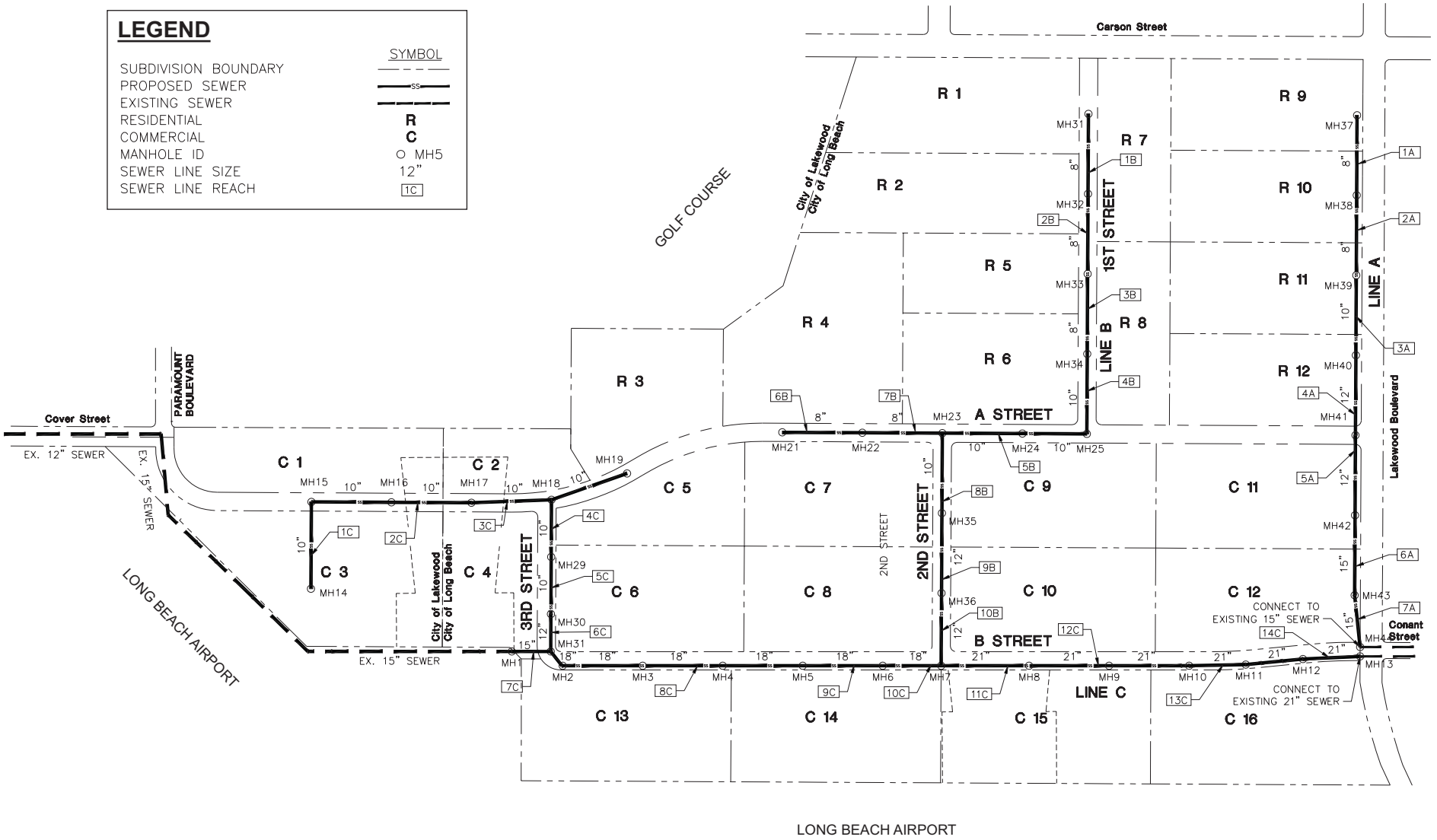

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Figure 69
Proposed On-Site Sewer System

Source: Kimley-Horn and Associates, Inc. June 2003

of this design criterion is determined not to be feasible, LBWD approval will be sought. The construction of the planned sewer system shall conform to the requirements set forth in Section V.E, Hazards and Hazardous Materials, including the Risk Management Plan (RMP), which is designed to protect the long term health and safety of future residents and employees of the PacifiCenter project.

d. Analysis of Project Impacts

In order to size the proposed on-site sewer system and adequately assess impacts to the off-site downstream system, the Sewer Study analyzed maximum development for each parcel within the PacifiCenter site. Although not the expected development scenario, this analysis assumes buildout of the Commercial land use area with 100 percent light industrial uses in order to provide conservative or worst-case conditions relative to wastewater generation. Line sizing also took into account the proposed hotel use at two separate locations that were determined to yield the greatest impact on the on-site system. As shown in Table 75 on page 761, under worst-case conditions implementation of the proposed project will generate an estimated average sewage flow of 1,327,150 gpd (2.05 cfs), or an additional 1,243,150 gpd (1.92 cfs) when compared to existing conditions. Peak flow for the proposed project will be 4.22 cfs (2.73 mgd), or 3.94 cfs (2.55 mgd) more than the existing peak flow. It is important to note that the wastewater flows currently generated by on-site uses are substantially lower than those experienced in the past, due to steady reductions in operations and the associated workforce in recent years. Comparison of the project's estimated peak flow with the peak flow measured in 1992/1993, for example, yields a limited net increase of approximately 0.12 cfs (0.08 mgd).[440]

As described above, the existing on-site sewer infrastructure will be replaced by a new system designed to provide adequate service to the project. As shown in Figure 69 on page 759, the proposed sewer lines will connect to the existing 15-inch and 21-inch sewer lines at the intersection of Conant Street and Lakewood Boulevard and extend east to the Interceptor Trunk Sewer on Conant Street. As indicated by the Sewer Study, these existing lines currently are not used to their full capacity and together will be able to accommodate the additional sewage flows from the project site. Specifically, these two

[440] *Refer to Table 6 of the Sewer Master Plan Study prepared by Kimley-Horn and Associates (Appendix T of this EIR).*

Table 75

ESTIMATED PROJECT WASTEWATER GENERATION

Proposed Land Uses	Floor Area (sf) or Unit	Factor	Projected Wastewater Generation (gpd)
Commercial (light industrial) [a]	3,300,000 sf	223 g/1,000 sf/day	735,900
Hotel [a]	400 rooms	150 g/room/day	60,000
Housing [b]	2,500 units	85 g/person/day	531,250
Average Daily Flow Total			**1,327,150**
Peak Flow (cfs) [c]			**4.22**

[a] *Commercial uses include office, R&D, light industrial, and aviation-related uses. For purposes of this analysis, light industrial uses are assumed to comprise 100 percent of the Commercial area in order to present a conservative or worst-case scenario relative to wastewater generation. In addition to the total proposed 3.3 million square feet of commercial uses, up to 400 hotel rooms (listed separately in the table) may be developed.*

[b] *Residential occupancy is assumed to be 2.5 persons per dwelling unit. This is a standard number and provides a conservative analysis since the average household size for proposed on-site units is estimated to be 1.78 persons.*

[c] *Peak Wastewater Flow or $Q_{peak} = 2.04 * (Q_{avg})^{0.983}$ where Q is flow in cfs.*

Source: Kimley-Horn and Associates, Inc., December 2003.

lines have a total capacity of 7.04 cfs (at 75 percent full), which is greater than the total peak discharge of 6.13 cfs that will result from the project and surrounding off-site area.[441]

The 30-inch Interceptor Trunk Sewer located downstream of the PacifiCenter site has a capacity of 14 cfs. The Interceptor Trunk Sewer currently carries 6 cfs, which leaves a remaining capacity of 8 cfs. As such, the Interceptor Trunk Sewer will be able to accommodate the incremental peak flow of 3.94 cfs generated by the project.

Flows from the PacifiCenter site will be treated at either the LBWRP or the JWPCP. The LBWRP has a design capacity of 25 mgd (38.7 cfs) and a remaining treatment capacity of 7 mgd (10.8 cfs). JWPCP has a design capacity of 385 mgd (595.7 cfs) and a remaining capacity of 58.5 mgd (90.5 cfs). The CSDLA has indicated that both treatment plants have adequate capacity to treat the additional flows generated by the proposed project.[442] In addition, the PacifiCenter project will comply with all applicable LBWD, LACDPW, and CSDLA requirements for design and construction of new sewer infrastructure. Furthermore, implementation of water conservation measures such as

[441] *As discussed in the Sewer Study, off-site peak flows of 1.91 cfs enter the CSDLA sewer line at the westerly site boundary.*

[442] *Kimley-Horn, Inc., Sewer Master Plan Study, December 2003.*

those required by Titles 20 and 24 of the California Administrative Code will ultimately reduce wastewater flows as well (refer to Section V.M.1, Water, of this EIR for further discussion of water conservation). Therefore, the increase in project-generated wastewater will not exceed the existing capacity of the sewer delivery system or the existing capacity of the LBWRP or JWPCP. In addition, the proposed improvements to the existing infrastructure will not reduce the ability of the sewer system to serve the project area. No existing Lakewood facilities will be affected by project implementation. Therefore, impacts associated with demand for sewer facilities will be less than significant.

On-site sewer line improvements and new infrastructure to be installed as part of the proposed project have the potential to temporarily disrupt sewer service to land uses located upstream of the project site. However, in accordance with requirements of the LBWD, City of Lakewood Building and Safety Department, and CSDLA, the Applicant will implement measures (e.g., construction of a bypass line) in order to prevent backflows and disruption to upstream users during installation of pipeline improvements or new sewer infrastructure on-site. Therefore, construction impacts will be less than significant.

3. CUMULATIVE IMPACTS

The cumulative consequences of growth on sewage collection infrastructure and sewage treatment capacity should be considered in separate geographic contexts. Cumulative impacts relative to sewage conveyance infrastructure are evaluated locally in the context of anticipated developments expected to utilize the same elements of the sewage collection system. As discussed above, the PacifiCenter site receives sewer services from both the LBWD (in the City of Long Beach portion of the site) and the CSDLA (in the Lakewood portion). In the case of the proposed project, few related projects have been identified in the immediate project locale that are expected to generate substantial sewage effluent over and above projected flows and will absorb existing and proposed capacity. In addition, the CSDLA's interceptor trunk sewer (NLBITS) located downstream of the project site and into which nearby related projects (e.g., Related Project Nos. 6, 12, and 44) would ultimately discharge has available capacity of over 5 mgd. Therefore, no significant cumulative impacts on local sewage collection infrastructure are anticipated in conjunction with this project.

The cumulative implications of growth upon sewage treatment capacity should be evaluated regionally since sewage flows in both the Cities of Long Beach and Lakewood are treated at wastewater treatment facilities operated by the CSDLA. Therefore, the geographic area for the cumulative analysis for sewer treatment is defined as the CSDLA service area. Within its service area, the CSDLA uses SCAG forecasts of future population and employment growth to project needed capacity. Because the CSDLA

projects that its existing and programmed wastewater treatment capacity will be sufficient to accommodate the growth forecasted by SCAG within its service area, development that is generally consistent with this forecast can be adequately served by CSDLA facilities. As discussed in Section V.J.1, Employment, and Section V.J.3, Population, of this EIR, estimates of project employment and residential population growth fall within SCAG growth projections for the sub-region, the Cities of Long Beach and Lakewood, as well as Los Angeles County through 2020. Therefore, it can be concluded from a cumulative perspective that the project is consistent with regional planning for future wastewater treatment capacity and will not contribute to significant cumulative impacts.

4. MITIGATION MEASURES

Based on the above analyses, implementation of the PacifiCenter project will result in less than significant impacts on sewer service. However, the following mitigation measures are proposed to ensure implementation of the project features described above.

V.M.2-1 The proposed on-site sewer line improvements and associated sewer line connections located within the City of Lakewood portion of the project site shall be designed to meet applicable standards set forth by the Los Angeles County Department of Public Works (LACDPW) and shall be maintained by the County of Los Angeles Sanitation District Number 3 (CSDLA No.3). Associated wastewater flows shall discharge into sewer facilities located within the City of Long Beach portion of the project site, and the Long Beach Water Department (LBWD), on behalf of the City of Long Beach, shall accept such flows from the Lakewood portion of the on-site sewer system (approximately 1,000 feet in length). During the design phase of the on-site sewer line improvements, a new sewer manhole shall be located at the boundary between the Cities of Long Beach and Lakewood as a point of demarcation.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Water Department and Los Angeles County Department of Public Works

Monitoring Agency: Long Beach Water Department and County of Los Angeles Sanitation District Number 3

Action Indicating Compliance: Approval of Plans/Issuance of Building Permits

V.M.2-2 Any food service uses located within the Lakewood portion of the project site shall implement a grease control program that shall include the

installation of grease traps at the property, proper maintenance, and regular inspections.

Monitoring Phase: Pre-Construction

Enforcement Agency: Los Angeles County Department of Public Works

Monitoring Agency: City of Lakewood Community Development Department

Action Indicating Compliance: Approval of Plans/ Issuance of Building Permits

5. SIGNIFICANCE AFTER MITIGATION

No significant impacts on sewer service will occur. As such, no mitigation measures will be required.

1. ENVIRONMENTAL SETTING

a. Regional Facilities

The disposal of solid waste needs to be considered in the context of the regional and local levels as landfills usually serve multiple jurisdictions. Solid waste in Los Angeles County is collected by over 250 private waste haulers and several city governments. The majority of solid waste is disposed at landfills within the County. However, some waste is delivered to transformation (waste-to-energy) facilities, to out of County landfills or to intermodal facilities that transport the waste by rail to facilities outside of Los Angeles County.

Within Los Angeles County there are two primary classifications of land disposal facilities, Class III landfills and Unclassified (Inert) landfills. Class III landfills accept all types of nonhazardous solid waste, with major Class III facilities permitted to receive 250,000 tons or more of waste per year and minor facilities permitted to receive less than 250,000 tons per year. Unclassified landfills accept only inert waste, including soil, concrete, asphalt, and other construction and demolition debris (as defined by California Code of Regulations, Title 23, Section 2524).

The 1997 Los Angeles County Siting Element prepared by the Los Angeles County Department of Public Works (LACDPW) indicates that in 1990 residents and businesses of Los Angeles County disposed of approximately 16.1 million tons of solid waste in landfills in and out of Los Angeles County and at waste-to-energy facilities. As a result of aggressive waste diversion programs countywide and the recession experienced in the region between 1990 and 1995, the amount of solid waste disposed at facilities declined to 12 million tons by 1995. By the end of 1995, the capacity of permitted Class III landfills in Los Angeles County was estimated at approximately 102.3 million tons. Based on a 1995 average disposal rate of 35,050 tons per day (six days a week), excluding waste being imported to the County, capacity at local permitted Class III landfills will be met in less than ten years (from 1995). However, ultimate landfill capacity is determined by several factors including: (1) expiration of various permits (e.g., Land Use Permits, Waste Discharge Requirements Permits, Solid Waste Facilities Permits, and air quality permits);

(2)restrictions on accepting waste generated only within a landfill's particular jurisdiction and/or wasteshed boundary; and (3) operational constraints.

Several actions have occurred in the past few years that also alter the capacity projected in 1995. To begin, the City of Los Angeles granted a Conditional Use Permit for the expansion of Sunshine Canyon Landfill within its city limits on December 8, 1999. The expansion was approved by the Regional Water Quality Control Board in December 2003. As a result, total expansion capacity (County and City) at Sunshine Canyon will provide an additional 73 million tons of disposal capacity.[443] In addition, an application is currently being processed to add 38 million tons of disposal capacity to the Puente Hills Landfill. Although the Final EIR was certified on January 23, 2002, various technical permits and land use approvals are still required for final permit approval.[444] Finally, in August 2000, the Los Angeles County Sanitation District purchased the Eagle Mountain Landfill, which is located in Riverside County, and the Mesquite Landfill, which is located in Imperial County. Both facilities are waste-by-rail landfills that are fully permitted but not yet constructed due to ongoing federal litigation.[445] Eagle Mountain Landfill will have capacity to accept 20,000 tons per day (tpd) of waste and will have a total capacity of approximately 708 million tons, with a projected life of approximately 117 years. Mesquite Landfill will have daily capacity to accept 20,000 tpd of waste and total capacity of approximately 600 million tons, with a projected life of approximately 100 years.

Unclassified landfills face no capacity issues. By the end of 2001, the total remaining capacity of Unclassified landfills in Los Angeles County was estimated at approximately 55.79 million tons. Based on the 2001 annual disposal of 1.575 million tons of inert waste, there is remaining capacity for 35 years.[446]

b. Local Facilities

(1) City of Long Beach

Within the City of Long Beach, solid waste collection services are provided by the City's Environmental Services Bureau and 21 private, permitted commercial haulers.

[443] *Los Angeles County Countywide Integrated Waste Management Plan 2001 Annual Report—Part II: Siting Element Assessment.*

[444] *Solid Waste Facility and Water Quality Board permits are still pending as of June 10, 2003, Connie Christens, County of Los Angeles Sanitation District.*

[445] *While the Eagle Mountain and Mesquite Landfills are currently permitted, the permitted capacity could potentially be reduced as a result of the ongoing litigation.*

[446] *Los Angeles County Countywide Integrated Waste Management Plan 2001 Annual Report—Part II: Siting Element Assessment.*

Large businesses[447] and owners of residential properties with 10 or more units currently choose their waste hauler. In 2001, City residents and businesses disposed of approximately 666,424 tons of solid waste. This disposal amount reflects a waste diversion rate of approximately 45 percent, up from 21 percent in 1995, and 33 percent in 1999. During 2001, approximately 60 percent and 39 percent of the City's solid waste was disposed of at Class III landfills and transformation facilities, respectively. Less than 1 percent of the City's solid waste was disposed of at Unclassified landfills.

As indicated in Table 76 on page 768, solid waste generated in the City of Long Beach in 2001 was disposed of in 10 different landfills and two transformation facilities that are located in Los Angeles, Orange, Kern, Ventura, Riverside, and San Bernardino Counties. Solid waste collected from within the City of Long Beach is also disposed of at the Southeast Resource Recovery Facility (SERRF), a transformation facility owned and operated by the Sanitation Districts of Los Angeles County that is located in the City of Long Beach. The largest amount of the City's solid waste, approximately 39 percent, was disposed of at the SERRF. Approximately 32 percent of the waste was disposed of at Puente Hills Landfill in Los Angeles County and approximately 11 percent of waste was disposed of at Frank R. Bowerman and Olinda Alpha Landfills located in Orange County. The remainder (approximately 18 percent) was disposed of at the multiple locations identified in Table 76. Table 77 on page 769 provides the annual disposal quantity, annual capacity, remaining capacity, and permit status for the landfills that received the majority of solid waste generated in the City of Long Beach in 2001. As shown in Table 75, the combined remaining capacity of the seven Class III Landfills is approximately 170 million tons.

The SERRF, which receives the majority of the City's waste, has a permitted capacity of 2,240 tpd. The refuse sent to the SERRF is incinerated in boilers, creating steam that is used to drive a turbine-generator, which in turn produces electricity.[448] This energy is used to power SERRF operations, and the remainder is sold to the Southern California Edison Company for public use.[449] The SERRF processes an average of 1,290 tons of municipal solid waste each day from Long Beach and neighboring cities; and generates up to 36 megawatts of electricity per day. "Front-end" and "back-end" recycling at the SERRF helps to recover recyclable materials both prior to and after incineration.

[447] *Large businesses are defined as businesses that generate waste that fills a three-yard container two times per week.*

[448] *State-of-the-art pollution control technologies are employed to reduce contaminants in air emissions by up to 99.5 percent. Ash resulting from incineration is also treated, then used as road base material at the Puente Hills landfill.*

[449] *SERRF generates enough power each year to supply 35,000 residential homes with electricity.*

Table 76

DISTRIBUTION OF CITY OF LONG BEACH SOLID WASTE TO DISPOSAL SITES 2001

Landfill	Location	Type	Quantity Disposed (Tons)	Percentage of Solid Waste Disposed
Southeast Resource Recovery Facility	Long Beach	Transformation Facility	262,164.71	39.34%
Puente Hills	Unincorporated Los Angeles County	Class III	213,465.16	32.03%
Olinda Alpha Sanitary Landfill	Brea	Class III	44,244.97	6.64%
Chiquita Canyon	Valencia	Class III	30.991.21	4.65%
Frank R. Bowerman Sanitary Landfill	Irvine	Class III	29,903.09	4.49%
Sunshine Canyon	Unincorporated Los Angeles County	Class III	28,367.98	4.26%
Bradley	Los Angeles	Class III	26,416.73	3.96%
Prima Deshecha Sanitary Landfill	San Juan Capistrano	Class III	19,516.47	2.93%
Azusa Land Reclamation Co.	Azusa	Closed (October 1996) Currently accepts inert waste	4,584.24	0.69%
El Sobrante Sanitary Landfill	Riverside County	Class III	3,783.25	0.57%
Simi Valley Landfill – Recycling Center	Ventura County	Class II, III	2,483.22	0.37%
Commerce Refuse-to-Energy Facility	Commerce	Transformation Facility	381.71	0.06%
Arvin Sanitary Landfill	Kern County	Class III	114.85	0.02%
Fontana Refuse Disposal Site	Fontana	Class III	5.87	< 0.01%
Total Disposal (2001)			**666,423.46**	**100%**

Source: CIWMB Report, Jurisdiction Disposal by Facility for City of Long Beach, 2001.

The City of Long Beach receives a 10 percent waste diversion credit through use of the SERRF, thereby raising the City's waste diversion rate to 55 percent.

Table 77

CAPACITIES OF PRIMARY DISPOSAL SITES FOR WASTE FROM THE CITIES OF LONG BEACH AND LAKEWOOD

Landfill Site	Location	Annual Permitted Capacity (million tons) [a]	Year 2001 Annual Disposal (million tons) [b]	Remaining Permitted Capacity (million tons) [c]	Permit Expiration Date
Los Angeles County					
(Class III Landfills)					
Bradley	Los Angeles	3.06	2.03	1.33	January 2007
Chiquita Canyon	Valencia	1.84	1.41	18.73	November 2019
Puente Hills	Unincorporated Los Angeles County	4.04	3.67	6.86 [d]	November 2003 [d]
Sunshine Canyon	Unincorporated Los Angeles County	2.02	1.64	9.72 [e]	January 2004 [e]
(Unclassified Landfills)					
Azusa Land Reclamation	Azusa	1.99	0.17	27.47 [f]	January 2025
Orange County					
(Class III Landfills)					
Prima Deshecha	San Juan Capistrano	1.22	0.77	43.56	January 2040
Olinda Alpha Sanitary	Brea	2.45	1.93	25.94	January 2013
Frank Bowerman	Irvine	2.60	2.10	64.15	January 2024

[a] *Annual capacity based on six-day work week and six holidays, unless otherwise noted.*

[b] *Orange County data is for the 7/1/2001 – 6/30/2002 time period.*

[c] *Los Angeles County landfill data as of 1/1/2002; Orange County landfill data as of 6/30/2002.*

[d] *Application permit for expansion/extension is pending. When approved, the landfill life will be extended through year 2013, with 38 million tons of increased disposal capacity. This extension/ expansion data is not reflected in these figures.*

[e] *The City of Los Angeles granted a Conditional Use Permit for the expansion of Sunshine Canyon Landfill in December 1999. While the Regional Water Quality Control Board approved the expansion in December 2003, these figures reflect conditions prior to the approved expansion, which will provide an additional 73 million tons of capacity.*

[f] *By court order, on 10/2/96, the California Regional Water Quality Control Board – Los Angeles Region ordered the Azusa Land Reclamation Landfill to immediately cease accepting Municipal Solid Waste. Permitted daily capacity of 6,500 tpd consists of 6,000 tpd of refuse and 500 tpd of inert waste. Facility currently accepts inert waste only.*

Sources: California Integrated Waste Management Board; Los Angeles County Countywide Integrated Waste Management Plan 2001 Annual Report; and Orange County Integrated Waste Management Department, Landfill Capacity Data As of June 30, 2002.

Similar to patterns Countywide, the City of Long Beach has increased efforts to divert refuse through waste reduction, recycling, and composting programs. Source reduction programs in place include xeriscaping/grasscycling,[450] backyard and on-site composting/mulching, and business waste and government source reduction programs. The City provides recycling services such as residential curbside recycling and commercial pick-up service through a private contractor, Waste Management Inc. In addition, each of the permitted haulers is required to have a City-approved recycling program in order to meet applicable waste diversion requirements. Other recycling programs include residential drop-off and buy-back programs, school and government recycling, and seasonal and special event recycling. Waste materials such as ash, tires, scrap metal, wood, and construction and demolition materials are also recycled, and composting programs for greenwaste and food waste exist.

In order to increase waste diversion, raise public awareness, and promote environmental stewardship throughout the community, the City of Long Beach has numerous public outreach programs in place. Workshops on recycling and composting are offered to residents, businesses, and local schools. A mobile classroom called TREC, the Traveling Recycling Education Center, makes trips to public elementary schools, summer camps, and special events such as America Recycles Day and Beach Clean-Up Days throughout the year. Educational information is also disseminated through the distribution of flyers, brochures, and guides as well as via television, radio, and the City of Long Beach Integrated Resources Bureau's web site.

(2) City of Lakewood

The City of Lakewood has a franchise agreement with BZ Disposal for the collection of solid waste generated from within the City. During 2001, City of Lakewood residents and businesses disposed of approximately 79,717 tons of solid waste.[451] Approximately 57 percent of the waste generated was disposed of at transformation facilities. The remainder (approximately 43 percent of the waste) was disposed of at Class III landfills.[452] As shown in Table 78 on page 771, in 2001, approximately 57 percent of the City's waste disposal was disposed of at the SERRF in the City of Long Beach. Approximately 20 percent of the City's waste was disposed of at Puente Hills Landfill in

[450] *Xeriscaping is landscaping with slow-growing, drought tolerant plants to conserve water and reduce yard trimmings. Grasscycling is the natural process of leaving clippings on the lawn after mowing allowing them to decompose naturally.*

[451] *Jurisdiction Disposal by Facility for the City of Lakewood, 2001.*

[452] *Less than one-half of 1 percent of the City's waste was disposed of at Unclassified landfills.*

Table 78

DISTRIBUTION OF CITY OF LAKEWOOD SOLID WASTE TO DISPOSAL SITES 2001

Landfill	Location	Type	Quantity Disposed (Tons)	Percentage of Solid Waste Disposed
Southeast Resource Recovery Facility	Long Beach	Transformation Facility	45,361.04	56.90%
Puente Hills	Unincorporated Los Angeles County	Class III	16,175.82	20.29%
Frank R. Bowerman Sanitary Landfill	Irvine	Class III	10,442.49	13.10%
Chiquita Canyon	Valencia	Class III	4,013.83	5.04%
Prima Deshecha Sanitary Landfill	San Juan Capistrano	Class III	1,723.79	2.16%
Olinda Alpha Sanitary Landfill	Brea	Class III	1,466.97	1.84%
Azusa Land Reclamation	Azusa	Closed (October 1996) Currently accepts inert waste	337.45	0.42%
Bradley Landfill West and Extension	Los Angeles	Class III	105.40	0.13%
Arvin Sanitary Landfill	Kern County	Class III	33.30	0.04%
Commerce Refuse-to Energy Facility	Commerce	Transformation Facility	27.11	0.03%
El Sobrante Sanitary Landfill	Riverside County	Class III	20.53	0.03%
Sunshine Canyon SLF County Extension	Sylmar	Class III	9.13	0.01%
Total Disposal (2001)			**79,716.86**	**100%**

Source: CIWMB Report, Jurisdiction Disposal by Facility for City of Lakewood, 2001.

Los Angeles County. Seventeen percent of the City's waste was taken to Orange County landfills, with the remainder disposed of at landfills in Los Angeles, Riverside, and Kern counties.

Regarding diversion of waste, the City of Lakewood conducted a New Base Year Generation Study in 1999, which was approved by the California Integrated Waste Management Board (CIWMB) in July 2000. The Study determined that the City's 1999

diversion rate was 22.5 percent, and established a diversion goal at 42 percent.[453] In 2000, the City reached a 41 percent diversion rate, and was found in compliance with AB 939 by the CIWMB under a good faith effort. It is anticipated that the City will exceed 42 percent diversion for its 2001 diversion rate.[454]

The City of Lakewood has an active outreach and education program with regard to waste diversion. The City's webpage provides articles on recycling and solid waste reduction. The City also offers backyard composting seminars. The City of Lakewood does not offer curbside recycling to any sectors within the community.[455] In lieu of curbside recycling, Lakewood relies on buyback and drop-off centers. The City of Lakewood recently adopted a resolution to require a location for the storage of recyclables in new multi-family construction. Additionally, the City of Lakewood conducted its first greenwaste drop-off program in July 2001, during which 3.5 tons of material was collected. In 2002, the program collected almost 50 tons of green waste. The City also conducted electronics waste collection events, beverage container recycling and outreach, and participated in a food waste collection program.

The City encourages recycling in the commercial sector and awards "Business Recycler of the Year" to businesses and also has nominated businesses for the State Waste Reduction Awards Program (WRAP) administered by CIWMB. The Lakewood Center Mall has implemented a commercial recycling program and a number of other businesses and restaurants are currently conducting audits as the first step in establishing recycling programs.

c. Existing Project Site Conditions

Solid waste collection services within the City of Long Beach portion of the site are collected by Waste Management, Inc. In addition, BZ disposal collects the solid waste generated within the portion of the project site within the City of Lakewood. Using solid waste disposal factors provided by the CIWMB and the Los Angeles County Facilities Study (1999-2000), solid waste disposal from the baseline number of employees was estimated. Factors for annual tons per employee range from 0.4 ton per employee per

[453] *The City diversion goal was reduced from 50 percent to 42 percent due to the City's high utilization of the SRRF Waste-to-Energy facility in Long Beach.*

[454] *Personal Communication with Michelle Leonard of SCS Engineers, Solid Waste Consultant to the City of Lakewood, December 2002.*

[455] *As there is no curbside program in Lakewood, commercial businesses have the option of either contracting to have recyclable materials removed or utilizing the network of drop-off and buy-back centers for recyclables.*

year for manufacturing and warehouse uses to 0.52 ton per employee per year for office and R&D uses. To provide for a more conservative analysis of the net impacts to solid waste facilities, the factor for manufacturing and warehouse uses was applied to the 545 employees that were on the site as of November 2002, when the Notice of Preparation for the project was circulated. For the 545 employees, an estimated 218 tons per year of solid waste were disposed either at landfills or transformation facilities under the baseline condition.

Hazardous materials are currently used on the site. The materials are typical of an aircraft manufacturing facility and include materials such as paint sealant, fuels, oil, and photochemicals. The Long Beach Division of Boeing currently contracts with private hazardous waste haulers for the disposal of hazardous waste from the site. Refer to Section V.E., Hazards and Hazardous Materials, of this EIR for a detailed discussion regarding the disposal of hazardous materials.

d. Regulatory Framework

During the past few decades, as many of the landfills in the State were approaching capacity and the siting of new landfills became increasingly difficult, the need for source reduction, recycling, and composting became apparent. In response to the increasing solid waste disposal issue, three primary pieces of legislation related to solid waste have been passed at the State level. The State Assembly in September 1989 passed the California Integrated Waste Management Act (AB 939:Sher). AB 939 emphasizes conservation of natural resources through the reduction, recycling, and reuse of solid waste. AB 939 requires all cities and counties in the State to divert 25 percent of the solid waste stream from landfills by 1995 and 50 percent by the year 2000, or face potential fines. The Act also requires that all cities conduct a Solid Waste Generation Study (SWGS) and prepare a Source Reduction Recycling Element (SRRE). In accordance with AB 939, local agencies must submit an annual report to the CIWMB summarizing its progress in diverting solid waste disposal.

Senate Bill 1374 (Kuehl), (Construction and Demolition Waste Materials: Diversion Requirements) passed in 2002, requires that the annual report submitted to the CIWMB also include a summary of the progress made in diversion of construction and demolition waste materials. In addition, SB 1374 requires the CIWMB, by March 1, 2004, to adopt a model ordinance suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition (C&D) waste materials from landfills. Local agencies will be required to adopt C&D diversion ordinances with diversion rates by a specified timeframe in accordance with SB 1374. If such an ordinance is not adopted by the local agency, then the model ordinance adopted by the CIWMB will take effect.

The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires each development project to provide an adequate storage area for collection and removal of recyclable materials. The size of these storage areas is to be based on ordinances adopted by each jurisdiction. If no such ordinances exist, the size shall be based on the model ordinance prepared by CIWMB.[456]

(1) City of Long Beach

In response to AB 939 the City of Long Beach developed a SRRE, which was approved by the CIWMB in September 1994. The SRRE describes the means by which the City has and will continue to attain the diversion goals set forth in AB 939, primarily through source reduction, recycling, and composting. Please refer to the discussion above regarding the City's waste diversion programs and outreach efforts, all of which are identified in the SRRE.

Compliance with AB 939 is documented in an Annual Report submitted by each jurisdiction, which indicates the implementation status of the waste diversion programs described in the SRRE. The report also identifies the jurisdiction's calculated annual diversion rate. As mentioned above, in 2001, the City of Long Beach achieved a waste diversion rate of approximately 45 percent (plus a 10 percent waste diversion credit for use of the SERRF, for a total diversion rate of approximately 55 percent).

As required by AB 939, the City has also prepared a SWGS. The study is considered a component of the SRRE, and establishes the base data used to measure future diversion rates. In March 2000, 1998 was established as the new base year for the City's SRRE. The SWGS also characterizes the waste generated, disposed of, and diverted, in terms of types and amounts of waste.

(2) City of Lakewood

In response to AB 939 the City of Lakewood also developed a SRRE, which describes the means by which the City has and will continue to attain the diversion goals set forth in AB 939. Please refer to the discussion above regarding the City's waste diversion programs and outreach efforts, all of which are identified in the SRRE.

[456] *CIWMB's model ordinance states that storage areas shall have the ability to accommodate receptacles for recyclable materials in an accessible and convenient location for those who deposit as well as those who collect and load recyclable materials.*

As required by AB 939, the City of Lakewood has also prepared a SWGS as a component of the SRRE. As previously mentioned, this study establishes the base data used to measure future diversion rates and characterizes the waste generated, disposed of, and diverted, in terms of types and amounts of waste.

In addition, the City of Lakewood has a Construction and Demolition (C&D) Debris Ordinance to increase the recycling of construction related materials and debris. While the ordinance does not set specific recycling requirements, contractors working in Lakewood are required to report to the City the amount of construction and demolition debris that is recycled. Upon issuance of a permit, contractors and residents are provided information regarding the recycling and reuse of construction related materials and debris. The information includes instructions on how to keep materials separate and where to take the materials.

2. ENVIRONMENTAL IMPACTS

a. Methodology

Solid waste disposal associated with operation of the project was estimated using disposal rates from studies prepared by CIWMB and Los Angeles County.[457] To provide for a more conservative estimate of the net solid waste that will be disposed of from the project site, the estimated solid waste disposal from operation of the PacifiCenter project was compared to the solid waste disposal generated by the 545 employees that were on site as of November 2002, as indicated in the section entitled Existing Project Site Conditions, above. Based on the threshold of significance described below, this net increase associated with operation of the project was then compared with the forecasted cumulative Countywide increase in the solid waste stream flowing into major County solid waste facilities between 2003 and 2020.

Solid waste disposal requirements resulting from the planned demolition of the Boeing Enclave portion of the PacifiCenter project (as part of the separate and ongoing remediation program) were estimated based on the approximate size of structures and type of building materials to be demolished. Based on these factors and on-site conditions, solid waste disposal associated with construction of the project was estimated and compared with available landfill capacity.

[457] *Disposal rates are the volumes of solid waste that are managed by disposing of the waste at landfills or at transformation facilities. The disposal rates account for any waste diversion that occurred.*

b. Thresholds of Significance

In general, a project's impact on solid waste is considered significant if:

- The project would not be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- The project would not comply with federal, state, and local statutes and regulations related to solid waste.

Based on the complex system of waste disposal using numerous landfills within and outside of Los Angeles County as well as research regarding significance thresholds employed or considered in other Southern California jurisdictions (presented in Appendix U, Research of Solid Waste Impact Thresholds), a more specific threshold of significance for solid waste impacts is used herein. Specifically, a significant impact to solid waste disposal facilities will occur if:

- Solid waste disposal generated by implementation of the proposed project or cumulative projects is determined to represent more than one percent of the forecasted cumulative Countywide increase in the solid waste stream flowing into major County solid waste facilities between 2003 and 2020.

c. Project Features

When demolition activities within the Boeing Enclave occur as part of the separate and ongoing remediation program, building and hardscape materials will be reused on-site to the extent feasible in accordance with regulatory requirements in order to reduce the disposal of waste associated with construction activities. In addition, in accordance with regulatory requirements, the allocation of adequate storage space for the collection and loading of recyclable materials will be included in the design of buildings and waste collection points throughout the PacifiCenter site to facilitate recycling. Finally, a program will be implemented to divert 30 to 50 percent of the waste generated by the project's commercial uses.[458]

[458] *The City or private hauler will design and implement the program for the commercial uses.*

d. Analysis of Project Impacts

Table 79 on page 778 provides an estimate of the maximum amount of solid waste that will be disposed at project buildout. As indicated therein, when compared with existing conditions, the project will result in a net increase of approximately 8,874 annual tons of solid waste, or 33.8 tons per day, that will be disposed of in landfills or transformation facilities. This net increase of disposed solid waste represents an increase of 1.4 percent of the combined waste disposed of by existing uses within the Cities of Long Beach and Lakewood during year 2001.

Of the estimated net increase of up to 8,874 annual tons of solid waste that will be disposed of from the entire project, the majority of solid waste will be generated from the portion of the site located within the City of Long Beach. The uses within the City of Long Beach could generate an estimated maximum net increase of 8,042 annual tons of solid waste, which will be disposed of at landfills or transformation facilities. This represents an increase of approximately 1.3 percent of the 2001 annual solid waste disposed of by the City of Long Beach. This worst-case estimate assumes that all 150,000 square feet of retail development will occur within the City of Long Beach.

Depending on how the 150,000 square feet of retail uses are distributed between the Long Beach and Lakewood portions of the project site, the 23-acre City of Lakewood portion of the project site could generate an estimated maximum 832 to 1,055 tons per year of solid waste to be disposed of at landfills or transformation facilities. The worst-case estimate of 1,055 tons per year represents an increase of approximately 1.3 percent over the year 2001 waste disposed of from the City of Lakewood. While it is more likely that the majority of the retail uses that are proposed as part of the project will be developed within the City of Long Beach portion of the project site, the worst-case estimate for the City of Lakewood is based on the conservative assumption that all retail uses will be developed within the City of Lakewood, since retail uses will be allowed under the commercial land use designation. However, if retail uses were confined to the City of Long Beach portion of the project site, the maximum net increase in solid waste that could be attributed to the City of Lakewood portion of the project site will be approximately 832 tons per year, which will represent an increase of approximately 1 percent over the year 2001 City of Lakewood solid waste disposal levels.

Given the percentage increase of solid waste disposal as a result of project implementation, the regional landfills and the SERRF that are currently used for the disposal of solid waste from Long Beach and Lakewood have sufficient capacity to accommodate the demand for Class III disposal facilities generated by the PacifiCenter project. More specifically, the SERRF has a permitted capacity of 2,240 tpd, with an

Table 79

PROJECTED MAXIMUM ANNUAL SOLID WASTE DISPOSAL FOR THE PROJECT

Use	Factor (Tons/Residence or Employee/Year)[a]	Total Annual Solid Waste (Tons)
Residential Units	0.46	1,150
Office	0.52	7,280
Retail	1.90	570
Hotel	2.10	924
Total Waste Disposal		**9,092**
Minus Baseline Solid Waste Disposal		**218**
NET INCREASE OF SOLID WASTE DISPOSAL		**8,874**

[a] *The factor for office was obtained from the Los Angeles County Facilities Study, 1999-2000. These disposal factors are annual tons per employee by business type. The factor for residences was obtained from the CIWMB website and is conservative as it represents multi-family. Single family factor is 0.41/residence.*

Source: PCR Services Corporation, January 2004.

average daily intake of 1,290 tpd. In addition, as shown in Table 77 on page 769, the regional facilities have sufficient capacity to accommodate solid waste disposal generated by the project and the region.

In summary, at buildout, the PacifiCenter project is expected to generate a maximum net increase of approximately 8,874 tons of solid waste per year, or 29 tons per day. By comparison, County-wide average daily solid waste disposal is estimated to be approximately 42,000 tons per day by the year 2020, which is an increase of 6,500 tpd more than the year 2003 solid waste disposal estimate.[459] The project's average daily disposal rate of approximately 29 tpd represents less than 1 percent (0.40 percent) of the forecasted daily increase in disposal by 2020. Therefore, based on the significance threshold cited above, sufficient solid waste disposal capacity is available to accommodate the project's solid waste disposal needs. No significant project impact will occur.[460]

[459] *Based on solid waste disposal forecast data for Los Angeles County contained in "Continued Operation of the Puente Hills Landfill," Environmental Impact Report, Sanitation Districts of Los Angeles County, January 2002. A one percent per annum growth factor was applied to the year 2015 disposal requirement forecast (under the moderate growth assumptions) to estimate the year 2020 disposal requirement.*

[460] *Because of the regional nature of solid waste disposal, if all of the 3.3 million square feet were developed in Long Beach, the conclusions with regard to solid waste disposal would remain the same.*

Construction of the proposed project will involve site preparation and building activities, and demolition of Boeing Enclave structures when such operations cease, all of which will generate waste materials. An estimated 57,000 tons of building material and hardscape (surface pavement and concrete) could be generated from construction of the proposed project. It is anticipated that the majority of the hardscape material, approximately 52,500 tons, will be processed and reused on-site. It is estimated that approximately 4,500 tons of material will be removed from the project site. Of the 4,500 tons about half of the material will be recyclable leaving about 2,250 tons of demolition material that will be disposed of at Unclassified landfills. The Unclassified landfills that will accept such materials have sufficient capacity (more than 55 million tons capacity) to accommodate the disposal materials that will be generated by construction activities. Therefore, impacts will be less than significant.

It is anticipated that hazardous materials will continue to be used on-site. The use of such hazardous materials will occur in the Enclave, potentially at future commercial businesses, as well as in association with future residences. The use of hazardous materials associated with future commercial and residential uses will entail the use of materials generally associated with these uses, such as solvents and toner for commercial uses and cleaners, fertilizers, and paints for residential uses. As required by Federal and State regulations, users will contract with a business that specializes in the removal and proper disposal of hazardous waste. Refer to Section V.E, Hazards and Hazardous Materials, of this EIR for a more detailed discussion regarding the disposal of hazardous materials. No significant impacts associated with the disposal capacity for hazardous materials are expected to occur and no mitigation measures will be required.

The project will comply with Senate Bill 1374 (Kuehl), (Construction and Demolition Waste Materials: Diversion Requirements), since the project will reuse the majority of the hardscape material on site. In addition, with about half of the remaining material being recyclable, only about four percent of the building material and hardscape generated from demolition on the site will be disposed of at Unclassified landfills. As indicated in Project Features, buildings will include storage space for the collection and loading of recyclable materials and waste collection points will be provided throughout the site in accordance with the California Solid Waste Reuse and Recycling Access Act of 1991. Finally, with these activities as well as the program to divert 30 to 50 percent of the waste generated by the commercial uses, the project will comply with California Integrated Waste Management Act (AB 939:Sher). Based on the above, the project will comply with federal, state, and local statutes and regulations related to solid waste.

3. CUMULATIVE IMPACTS

Construction

Development associated with the related projects (including Related Project No. 77, the proposed Long Beach Airport improvements, and demolition activities related to the mandated remediation program underway for the project site,[461] Related Project No. 44), will contribute to an increased demand for landfill capacity for solid waste from construction activities and ongoing operations. To implement the on-site remediation program, an estimated 4,651,234 square feet of existing development is currently in the process of being removed in accordance with demolition permits issued by the City of Long Beach.[462] The remaining approximately 380,000 square feet of floor area associated with the continuation of Boeing Enclave operations that may ultimately be removed as part of the remediation activities or as part of the project. Thus, for purposes of providing a conservative analysis, it is assumed that this floor area will be removed as part of the project. When accounting for material from the Boeing Enclave that may be recycled or crushed and used on-site, about 30,000 tons of demolition material will be disposed of at Unclassified landfills.

Other related projects in the area (e.g., Related Project Nos. 6 and 12) will also generate an increased demand for landfill capacity during construction. Similar to the proposed project, these projects are expected to recycle and reuse a large portion of the construction debris, thereby reducing the amount of material disposed of at landfills.

As demonstrated earlier, the region's Unclassified landfills face no capacity shortfall. By the end of 2001, the total remaining capacity of Unclassified landfills in Los Angeles County was estimated at approximately 55.79 million tons. Based on the 2001 annual disposal rate of 1.575 million tons of inert waste, there is remaining capacity for 35 years.[463] Therefore, impacts on the region's Unclassified landfills capacity due to

[461] *A soil and groundwater remediation program is presently being implemented at the project site in accordance with Cleanup and Abatement Order 95-048 issued by the California Regional Water Quality Control Board, Los Angeles Region, as discussed in detail in Section IV, Overview of Environmental Setting.*

[462] *Boeing Realty Corporation has implemented a construction and demolition recycling program for the demolition associated with the mandated remediation program that is currently underway. Materials such as concrete and asphalt, ferrous and non-ferrous materials, wood, and some equipment will be recycled. Concrete and asphalt will be crushed on-site and used as road base and/or fill material. All other recyclable materials will be sorted and processed on-site, then transported to the respective recycling center and/or vendor.*

[463] *Los Angeles County Countywide Integrated Waste Management Plan 2001 Annual Report—Part II: Siting Element Assessment.*

construction activities related to the proposed project and related projects will be less than significant.

Operation

The solid waste disposal demand attributable to the 86 related projects is provided in Table 80 on page 782. As indicated therein, solid waste generation from the related projects is estimated to be approximately 55 tpd; cumulative waste generation including the PacifiCenter project would total an estimated 88 tpd. It is important to note that 55 tpd is a gross estimate that does not consider the solid waste disposal demand from the many existing land uses that will be displaced by the 86 related projects. Therefore, the net cumulative disposal requirement generated by these projects will likely be substantially less. In addition, based on the SCAG growth projections for the Cities of Long Beach and Lakewood (which take into account planned or reasonably foreseeable development, such as the related projects, within each jurisdiction), and using standard waste disposal factors from the Los Angeles County Facilities Study and CIWMB, an estimated 185 tons per day of additional solid waste will be disposed of by incremental development expected through the year 2020. When excluding the disposal capacity of the SERRF, this solid waste disposal resulting from anticipated growth projected by SCAG through 2020 will represent up to approximately 2.8 percent of the solid waste stream flowing into major County solid waste facilities through the year 2020. Assuming that approximately 40 percent of this solid waste was disposed of at the SERRF, the increase in solid waste disposal from SCAG projected growth in the Cities of Long Beach and Lakewood will represent approximately 1.7 percent of the solid waste stream flowing into major County landfills through the year 2020. Due to recognized long-term capacity shortages, although development of the project itself will not exacerbate landfill shortages in the region, when considering the project together with other future growth expected by SCAG through 2020, cumulative impacts associated with solid waste disposal will be significant.

4. MITIGATION MEASURES

To ensure that recycling is facilitated, the following mitigation measures are prescribed:

V.M.3-1 The allocation of adequate storage space for the collection and loading of recyclable materials shall be included in the design of buildings and waste collection points throughout the PacifiCenter site to encourage recycling. Recycling shall be provided for residential developments with

Table 80

ESTIMATE OF RELATED PROJECTS SOLID WASTE DISPOSAL REQUIREMENTS

Land Use	Aggregate Size	Employee-Resident Factor [a]	Employee-Resident Total	Tons/Year Disposal Factor [b]	Tons/Year Total
Long Beach Airport Expansion	0.8 MAP	n/a	n/a	387/MAP	310
Hotel	1,685 rm	1.1 emp/rm	1,854	2.1/emp	3,893
Industrial	6,356 sf	1 emp/1,000 sf	6	1.9/emp	12
Miscellaneous [c]	243,500 sf	1 emp/500 sf	487	0.9/emp	438
Office	1,390,100 sf	1 emp/225 sf	6,178	0.52/emp	3,213
Residential	3,527 du	1.78 res/du	6,268	0.41/res	2,570
Restaurant	22,282 sf	1 emp/225 sf	99	3.1/emp	307
Retail	1,541,641 sf	1 emp/500 sf	3,083	1.9/emp	5,858
Storage	989,952 sf	1 emp/10,000 sf	99	0.9/emp	89
Transitional Housing	201 rm	1 res/rm	201	0.41/res	82
Related Projects Tons/Year Aggregate Total					**16,772**
Related Projects Tons/Day Aggregate Total					**55**

[a] *Employment factors for commercial development uses provided by Robert Charles Lesser & Co., August 2001, with the exception of the Miscellaneous and Storage use categories, which are PCR estimates.*

[b] *The factors for Airport and Office uses were obtained from the Los Angeles County Facilities Study, 1999-2000, and the Solid Waste Technical Report prepared for the LAX Master Plan EIS/EIR, January 2001. Other factors were obtained from the CIWMB.*

[c] *Contains uses such as Religious, Recreation, Library, Education, and Attraction Venue.*

Source: PCR Services Corporation, November 2003.

four or more units as well as commercial and light industrial developments.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Department of Planning and Building or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Department of Planning and Building or City of Lakewood Department of Public Works

Action Indicating Compliance: Issuance of building permit and Certificate of Occupancy from the City

of Long Beach or the City of Lakewood.

V.M.3-2 A program shall be implemented by the City or private hauler to divert 30 to 50 percent of the waste generated by the project's commercial uses. The precise percentage to be diverted will depend on the specific commercial use to be implemented and will be defined by the City of Long Beach Environmental Services Bureau and the City of Lakewood Department of Public Works.

Monitoring Phase: Operation of the commercial use

Enforcement Agency: City of Long Beach Environmental Services Bureau and City of Lakewood Department of Public Works

Monitoring Agency: City of Long Beach Environmental Services Bureau and City of Lakewood Department of Public Works

Action Indicating Compliance: Field inspection

5. SIGNIFICANCE AFTER MITIGATION

Implementation of the above-mentioned mitigation measure will facilitate recycling on site and will therefore help to ensure that the project's impact on regional solid waste disposal capacity is minimized to the extent feasible. However, cumulative impacts associated with disposal to Class III landfills will remain significant and unavoidable.

V. ENVIRONMENTAL IMPACT ANALYSIS
M. UTILITIES
4. ENERGY

The analysis of energy impacts presented in this section is divided into two distinct types of energy: electricity and natural gas. Both analyses are based on the Energy Technical Report prepared by Butsko Utility Design, Inc. dated January 2004, presented in Appendix V of this EIR.

1. ENVIRONMENTAL SETTING

a. Regional Conditions

(1) Electricity

In August 1996, the California Legislature enacted deregulation of the electric power industry with the passage of Assembly Bill 1890. Under the deregulation plan, Investor Owned Utilities such as Southern California Edison (SCE) were required to decouple generation, transmission, and distribution operations. The plan formed a Power Exchange (PX) to create a wholesale energy market and established an Independent System Operator (ISO) to manage the State's transmission grid. As a result of flaws within the new free-market system, as well as a shortage of generation capacity within California, a series of energy shortages occurred, causing the ISO to issue several Stage One power alerts in 2000 and early 2001 and necessitating rolling blackouts in parts of the State in an effort to reduce energy consumption. Over the course of 2000 and 2001 rolling power outages occurred in the southern California region and specifically in the City of Long Beach. To alleviate the energy crisis, the State subsequently closed the PX, resecured long-term energy contracts with wholesale providers, and expedited the construction and permitting of new power generation facilities. Implementation of energy conservation measures and public awareness programs resulted in a peak load decrease of 8 percent in 2001 and 5.4 percent in 2002. In addition, regulatory proceedings have since been held to determine the extent of wholesale electricity market manipulation.

Since 1999, the California Energy Commission (CEC) has approved 18 power plants each with a capacity of greater than 300 megawatts (MW), for a combined total capacity of 11,497 MW. As of October 2002, the State constructed six major power plants providing 3,587 MW of electricity. Seven power plants with combined generation capacity

of 4,724 MW are currently under construction. Construction of the five remaining plants, totaling 3,186 MW of capacity, has been placed on hold until additional capacity is needed. As of December 2002, the CEC was reviewing an additional 14 power plant applications, for a total of 8,827 MW of additional generation capacity.

According to information provided by the CEC, which is discussed more fully in the Energy Technical Report presented in Appendix V of this EIR, the SCE service area experienced a peak demand of 18,724 MW in 2000 and total load growth of 98.3 million MWh. The CEC estimates that peak demand and net energy load within SCE's service area will continue to grow annually by 2.4 percent and 2.0 percent, respectively. In light of these forecasts, the CEC projects a peak demand in SCE's service area of 24,960 MW in 2012 (the latest year in the current demand forecasts) and a net energy load of 125.2 million MWh.

(2) Natural Gas

Natural gas resources are drawn upon at naturally occurring reservoirs primarily located outside of the State and delivered via high-pressure transmission lines. California has three primary regional access points where interstate pipelines deliver natural gas into the State. Gas destined for southern California is accessed at a series of market hubs, with interconnections to Pacific Gas & Electric (PG&E) and the Southern California Gas Company (SoCal Gas). As the gas is transported to its destination, the pressure is maintained with the assistance of compressors. The gas is then received at a storage field (e.g., underground storage tanks) and redistributed through another series of transmission lines.

In order to meet the State's energy needs and help alleviate the recent energy crisis, several major expansion projects for natural gas transmission and storage facilities have occurred or are planned or underway, including the conversions of several former oil pipelines to natural gas. Such expansion projects will continue to ensure the delivery of adequate supplies throughout California. For example, since 2000, SoCal Gas has increased its gas receiving capability by 10.7 percent, with plans to increase capacity by 22 percent by 2012; SoCal Gas also has plans to increase storage capacity at two of its natural gas storage fields. The CEC projects sufficient natural gas supplies to meet the State's energy demands, despite a projected 41 percent increase in demand between 1997 and 2012. Furthermore, on a nationwide level, technically recoverable natural gas resources are estimated to far exceed current production levels according to the U.S. Department of Energy.

b. Local and Project Site Conditions

(1) Electricity

Electricity transmission and distribution facilities located in close proximity to the PacifiCenter project site are maintained by SCE and the Los Angeles Department of Water and Power (LADWP). SCE provides electric service to the project area via 66- and 12-kilovolt (kV) distribution lines located on the project site and adjacent streets that feed from the Del Amo and Lucas substations. Under existing conditions, two 66-kV lines located along Carson Street supply the Boost substation, located on a Boeing property immediately east of Lakewood Boulevard, which serves that property and the 48-acre Boeing Enclave area located on-site. The 66-kV Carson Street lines previously supplied the Turbo and Stress substations, located on-site, which served the site in the past. As part of demolition activities presently occurring within the project site as part of a soil and groundwater remediation program (refer to Section IV, Overview of Environmental Setting, for a description of the remediation program), the Turbo and Stress substations are in the process of being removed. In addition, a 12-kV distribution line along Carson Street provides back up service to the Boeing property east of Lakewood Boulevard and other off-site uses.

The Boeing Company operates a private, underground, electric distribution system throughout the project site and adjacent properties that has historically been supplied by the Turbo, Stress, and Boost substations. Currently, all power to the on-site distribution system is supplied by the Boost substation. This distribution system has an on-site capacity of 80 MW. The PacifiCenter site has a long history as an aircraft production facility with high energy needs. Even at its peak, all on-site demand has been met by SCE via its existing transmission and distribution facilities.

The baseline electricity consumption associated with the occupied uses within the project site (i.e., the Boeing Enclave) is estimated at 18,232 megawatt-hours (MWh) annually, as shown in Table 81 on page 787.[464] The peak electrical demand generated by the baseline uses is approximately 3.1 MW, also indicated in Table 81. As previously mentioned, this power demand is now met by the Boost substation.

[464] *Until recently, total floor area of over five million square feet existed on-site, in addition to approximately one million square feet of temporary trailers, modular buildings and other miscellaneous structures. When accounting for permitted demolition activities underway as part of the remediation program, approximately 380,000 square feet of occupied floor area may remain within the 48-acre Boeing Enclave area. This number was used to calculate baseline energy use.*

Table 81

ESTIMATED BASELINE ELECTRICITY CONSUMPTION

Land Uses	Floor Area (sq.ft.)	Peak Demand Factor (kW/sq.ft.)	Peak Electrical Demand (kW)	Annual Electrical Consumption (kWh)
Office	144,835	0.0047	681	4,041,735
R&D/Tech	25,000	0.0047	118	700,330
Manufacturing	160,670	0.0114	1,832	10,872,920
Warehouse	11,048	0.0007	8	47,480
Mechanical	37,950			2,569,855
TOTAL	**379,503**		**3,072**	**18,232,320**

sq.ft. = square feet
kW/sq.ft. = kilowatts per square foot
kW = kilowatts
kWh = kilowatt-hours

Source: Butsko Utility Design Inc., January 2004.

(2) Natural Gas

SoCal Gas supplies natural gas to much of southern California and maintains gas transmission and distribution facilities in the project area. Long Beach Energy (LBE), which receives its gas supplies through SoCal Gas's transmission network, provides gas service to the City of Long Beach. LBE has the capacity to deliver over 155 million cubic feet per day (MMcf/d), with a historic peak delivery of 73 MMcf/d (i.e., 47 percent of total delivery capacity) in December 1998. LBE delivers natural gas to the PacifiCenter site via a private distribution system operated throughout the site and adjacent Boeing properties by the Boeing Company. SoCal Gas does not currently provide gas service to the PacifiCenter site, including the 23-acre Lakewood portion of the site (buildings requiring gas service are not currently located within this area). Although SoCal Gas typically supplies natural gas to the City of Lakewood, any future gas service for the Lakewood portion of the project site will be provided by either SoCal Gas or LBE, based upon mutual agreement between the two utilities.

In order to accommodate the current demolition activities associated with the ongoing soil and groundwater remediation program on-site, as well as the continuation of aviation-related uses within the Boeing Enclave area, the project site's utility facilities have recently been reconfigured. As part of these activities, LBE extended an 8-inch gas main along the proposed B Street (i.e., at Conant Street west of Lakewood Boulevard) in 2002. This line was designed with sufficient capacity to serve the PacifiCenter project.

As previously discussed, operations at the PacifiCenter site have historically involved high energy consumption levels due to the types of land uses and activities occurring on the project site. However, the baseline uses at the site are estimated to consume approximately 1.5 million cubic feet per month (cu.ft./mo.), as indicated in Table 82 on page 789.

c. Regulatory Framework

Title 24 of the California Administrative Code, known as the California Building Energy Efficiency Standards, regulates energy consumption in new construction. These energy standards, which are among the strictest in the United States, are typically updated every three years by the California Energy Commission. Revised Title 24 standards became effective on June 15, 2001.

The energy efficiency standards regulate building energy consumption for heating, cooling, ventilation, water heating, and lighting. Title 24 may be met in one of two ways: by meeting performance criteria (measured in British thermal units (BTU) per square foot per year) or by installing a prescriptive list of energy conservation measures. Title 24 is enforced through the local building permit process.

2. ENVIRONMENTAL IMPACTS

a. Methodology

(1) Electricity

To demonstrate how electricity demand resulting from implementation of the PacifiCenter project will be accommodated, the analysis of project impacts related to electricity is based on a worst-case development scenario. This scenario comprises a land use mix within the maximum permitted floor area for each land use category that will generate the greatest electricity demand.[465] Peak electricity demand (i.e., the maximum amount of electricity needed at any given moment) and annual consumption were calculated for full buildout of the project under this scenario.

[465] *The land use mix identified as generating worst-case demand does not necessarily represent a plausible project development scenario, and actual energy demands will likely be less than those projected.*

Table 82

ESTIMATED BASELINE NATURAL GAS CONSUMPTION

Land Uses	Floor Area (sq.ft.)	Consumption Factor (cu.ft./sq.ft./mo.)	Monthly Gas Consumption (cu.ft./mo.)
Office	144,835	2.0	289,670
R&D/Tech	25,000	2.9396	73,490
Manufacturing	160,670	6.62	1,063,635
Warehouse	11,048	1.0	11,048
Mechanical	37,950	2.9396	111,558
TOTAL	**379,503**		**1,549,401**

sq.ft. = square feet
cu.ft./sq.ft./mo. = cubic feet per square foot per month
cu.ft./mo. = cubic feet per month

Source: Butsko Utility Design Inc., January 2004.

The future peak demand for electrical power associated with project development was calculated by Butsko Utility Design, Inc. based on consumption factors derived from typical utility design criteria and standard energy consumption guidelines established by the U.S. Energy Information Administration. The calculated net change in demand for electricity was compared with existing and planned power supplies and the available capacity of generation and distribution facilities to determine if project demand could be accommodated. The proposed on-site electrical system and the potential for improvements to off-site facilities were also evaluated to determine the adequacy of such systems.

(2) Natural Gas

To demonstrate how natural gas demand resulting from implementation of the PacifiCenter project will be accommodated, the analysis of project impacts related to natural gas is based on a worst-case development scenario. This scenario comprises a land use mix within the maximum permitted floor area for each land use category that will generate the greatest demand for natural gas.[466] Monthly gas consumption was calculated for full buildout of the project under this scenario.

[466] *The land use mix identified as generating worst-case demand does not necessarily represent a plausible project development scenario, and actual energy demands will likely be less than those projected.*

The monthly natural gas demand associated with the PacifiCenter project was calculated by Butsko Utility Design, Inc. using established consumption factors provided by the South Coast Air Quality Management District (SCAQMD). The calculated net change in natural gas demand was compared with existing and planned gas supplies and the available capacity of distribution facilities to determine if project demand could be accommodated. The proposed on-site natural gas distribution system and the potential for improvements to any off-site facilities were also evaluated to determine the adequacy of such systems.

b. Thresholds of Significance

For the purposes of this analysis, impacts to energy will be considered significant if, after project-related infrastructure improvements, the project:

- Results in a substantial increase in electricity or natural gas demand relative to the availability of supply.
- Results in substantial adverse physical impacts associated with the provision of new or physically altered energy transmission facilities, or the need for new or physically altered energy transmission facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable levels of service.
- Results in the use of substantial amounts of fuel and/or energy.

c. Project Features

As part of the project, new electrical and natural gas distribution systems will be constructed to supply development within the PacifiCenter site and replace the existing private on-site systems. These utility networks will be located underground within street rights-of-way and their construction will be coordinated with the street improvements proposed for the project. Conducted concurrently with full street improvements, the planned energy system improvements will be designed to accommodate total future development throughout the site and will not be limited to a specific development site or pad (based on development phasing or sequencing). This will reduce the potential for additional trenching and resurfacing of streets for subsequent utility improvements. This coordination of street and energy system improvements is considered a conservative approach to accommodating the project's energy requirements, as utility capacity will often be provided in advance of the actual development-related demand. The new energy distribution systems will incorporate the most up-to-date design, construction, operational,

and conservation standards to most efficiently meet the project's energy needs. New facilities will be installed per the construction standards and tariffs of each of the utilities. In addition, the construction of the new electrical and gas distribution system shall conform to the requirements set forth in Section V.E, Hazards and Hazardous Materials, including the Risk Management Plan (RMP) which is designed to protect the long-term health and safety of future residents and employees of the PacifiCenter project.

(1) Electricity

Initially the proposed on-site electricity distribution system will connect to SCE's existing 12-kV distribution line adjacent to the site. SCE has indicated that this line has available capacity of approximately 6 to 7 MW to serve the project's initial development increments. The new on-site distribution system will be operated and maintained by SCE, and its design will emphasize energy efficiency, utilizing current design, construction, and operating standards.

As electricity demand increases concurrent with the phasing of on-site development over time, SCE will construct a 66-kV/12-kV substation on-site to replace the Turbo and Stress substations being removed. SCE anticipates that the new substation will be needed by approximately 2009. Thus far, two potential locations have been identified for the substation: the southerly commercial area of the project and an area near the southwest corner of Lakewood Boulevard and Carson Street within the residential area of the project. If located in the residential portion of the project site, the substation will likely be a low profile structure with underground feed lines and a perimeter screen wall.

Although design of the substation will not commence until approximately 2006, SCE has provided general information on the maximum size and ultimate capacity of the facility. The substation may be designed to have up to four 28-MVA transformer banks, providing a total capacity of 128 MVA, with a maximum footprint of approximately 230 feet by 305 feet. SCE anticipates that less than 25 percent of the substation's capacity will be needed for the PacifiCenter site at full buildout, with the additional capacity available for future demand from off-site uses. The substation will connect to SCE's two 66-kV transmission lines along Carson Street. SCE plans to route its two existing 66-kV circuits to the new substation and the new 12-kV circuits leaving the substation in new underground substructures. Installation of the new underground substructures will be coordinated with PacifiCenter development and the installation of other utility infrastructure on-site.

(2) Natural Gas

Natural gas for the Long Beach portion of the PacifiCenter site will continue to be supplied by LBE, and any future buildings or structures located within the Lakewood portion of the site and requiring natural gas service will be supplied by either SoCal Gas or LBE, based upon mutual agreement between the two utilities. Natural gas will be delivered to the new on-site distribution system, which will be operated by LBE. The main connection and feed point for the on-site system will be from the recently installed 8-inch gas main located in B Street (formerly Conant Street). As previously mentioned, this line was designed with sufficient capacity to serve future development at the PacifiCenter site. The proposed on-site distribution system will also connect to LBE's existing distribution facilities along Carson Street. Like the proposed electrical system, the new natural gas distribution system will be designed per current design, construction, and operating standards in order to efficiently meet the project's energy needs. The installation of gas meters will be completed in accordance with the specifications of LBE, and to the extent feasible, gas meters will be installed outside.

d. Analysis of Project Impacts

(1) Electricity

The peak electrical demand associated with buildout of the PacifiCenter project is estimated to be approximately 32.6 MW, an increase of 29.5 MW relative to baseline conditions, as shown in Table 83 on page 793. As previously mentioned, SCE anticipates that less than 25 percent of the proposed on-site substation's capacity will be utilized to meet this maximum project-related demand. The project's estimated annual consumption will be 193,629 MWh, an increase of 175,397 MWh compared to existing conditions.

Project development will involve the replacement of less efficient and energy-intensive land uses (i.e., aircraft production and associated aviation-related uses) with new uses, structures, and systems that have higher efficiency energy utilization and meet updated regulatory standards. As indicated above, Initially the proposed on-site electricity distribution system will connect to SCE's existing 12-kV distribution line adjacent to the site. SCE has indicated that this line has available capacity of approximately 6 to 7 MW to serve the project's initial development increments. Once the proposed on-site substation is constructed (in or by approximately 2009), more than sufficient capacity will be provided for full buildout of the site, as future project demand is estimated to comprise less than 25 percent of the substation's total capacity. The proposed substation will connect to the existing 66-kV transmission lines along Carson Street, which used to supply the 53-MW

Table 83

ESTIMATED PACIFICENTER ELECTRICITY CONSUMPTION

Land Uses	Floor Area or Unit (sq.ft. or unit)	Peak Demand Factor (kW/sq.ft. or unit)	Peak Electrical Demand (kW)	Annual Electrical Consumption (kWh)
Light Industrial [a]	3,150,000	0.0080	25,200	149,562,000
Retail	150,000	0.0042	630	3,739,050
Hotel	400 rooms	4.8000	1,920	11,395,200
Residential	2,500 units	1.4-2.8	4,875	28,933,125
TOTAL			**32,625**	**193,629,375**

[a] *In order to analyze a worst-case development scenario, build out of the Commercial land use category with light industrial uses was assumed, since light industrial uses have the highest demand factors of the proposed uses. This land use mix does not necessarily represent a plausible project development scenario, and actual energy demands will likely be less than those projected.*

sq.ft. = square feet
kW/sq.ft. = kilowatts per square foot
kW = kilowatts
kWh = kilowatt-hours

Source: Butsko Utility Design Inc., January 2004.

Turbo and 25-KW Stress substations previously located on-site. SCE has confirmed that the 66-kV lines have ample capacity to serve the project, as these lines were originally built with the capacity to serve the high energy needs of Boeing's aircraft manufacturing facilities both on- and off-site.[467]

Based on the above, as sufficient transmission and distribution capacity will exist, off-site improvements will not be necessary, and on-site improvements will occur in a logical, efficient manner utilizing the most up-to-date design, construction, operational, and conservation standards, substantial adverse physical impacts associated with the construction or provision of new or physically altered energy transmission facilities will not occur. Additionally, the supply and distribution of power within the area surrounding the project site will not be reduced or inhibited as a result of project implementation, and levels of service to off-site users will not be adversely affected. With construction of the proposed on-site substation, SCE expects that additional capacity will be available for future demand from off-site uses. As such, impacts will be less than significant.

[467] *The existing 66-kV transmission lines met a historic peak demand of 59 MW at the site in 1992, as compared to the project's estimated maximum electric peak demand load of 32.6 MW.*

An evaluation of project electricity needs in relation to future energy loads illustrates that project implementation will not result in the use of substantial amounts of electricity. Based on the CEC projections for SCE's service area in 2012 (discussed briefly above and more fully in the Energy Technical Report), the project-related peak demand will represent 0.13 percent of that forecast and maximum project-related annual consumption will represent 0.17 percent of forecast growth.[468] Therefore, impacts associated with project electricity demand will be less than significant.

(2) Natural Gas

Development of the proposed PacifiCenter uses will generate a demand for approximately 32.9 million cubic feet of natural gas per month, an increase of approximately 31.3 million cu.ft./mo. over baseline conditions, as indicated in Table 84 on page 795. In addition, the project will entail the replacement of less efficient and energy-intensive land uses (i.e., aircraft production and associated aviation-related uses) with new uses, structures, and systems that have higher efficiency energy utilization and meet updated regulatory standards. The proposed on-site distribution system will connect to existing on- and off-site gas transmission lines (i.e., the new 8-inch gas main along the proposed B Street, which currently supplies the Boeing Enclave, and LBE's existing distribution facilities along Carson Street), and off-site improvements will not be necessary. As previously discussed, the 8-inch gas line in B Street was designed with sufficient capacity to serve future buildout of the PacifiCenter site, and LBE has confirmed its ability to serve the project. To date, LBE has only used 47 percent of its delivery capacity at peak delivery. Project gas demand represents approximately 0.70 percent of LBE's total daily delivery capacity. Furthermore, SoCal Gas's efforts to increase the availability of natural gas through transmission expansion projects and withdrawals from several of its storage fields will ensure that adequate supplies will continue to exist throughout the region.[469] Consequently, the supply and distribution of natural gas within the area surrounding the project site will not be reduced or inhibited as a result of project implementation, and levels of service to off-site users will not be adversely affected. In addition, as previously discussed, project compliance with the energy conservation standards set forth in Title 24 of the California Administrative Code will further reduce any potential impacts on natural gas resources. Based on the above, substantial adverse physical impacts associated with the construction or provision of new or physically altered energy transmission facilities will not occur, and the project will not result in the use of

[468] *The year 2012 is the latest year in the current CEC demand forecasts for the SCE service area (CEC, California Energy Demand 2002-2012 Forecast).*

[469] *The project site is served by LBE, which receives its gas supplies through SoCal Gas's transmission network.*

Table 84

ESTIMATED PACIFICENTER NATURAL GAS CONSUMPTION

Land Uses	Floor Area or Unit (sq.ft. or unit)	Consumption Factor (cu.ft./sq.ft. or unit/mo.)	Monthly Gas Consumption (cu.ft./mo.)
Light Industrial [a]	3,150,000	6.62	20,853,000
Retail	150,000	2.90	435,000
Hotel	400 rooms	3,840.00	1,536,000
Residential	2,500 units	4,011.50	10,028,750
TOTAL			**32,852,750**

[a] *In order to analyze a worst-case development scenario, build out of the Commercial land use category with light industrial uses was assumed, since light industrial has the highest demand factor of the proposed uses. This land use mix does not necessarily represent a plausible project development scenario, and actual energy demands will likely be less than those projected.*

sq.ft. = square feet
cu.ft./sq.ft./mo. = cubic feet per square foot per month
cu.ft./mo. = cubic feet per month

Source: Butsko Utility Design Inc., January 2004.

substantial amounts of natural gas. Therefore, no significant impacts to local or regional supplies of natural gas will occur as a result of the proposed project.

3. CUMULATIVE IMPACTS

The geographic area for cumulative analysis of electrical and natural gas demand is defined as the Cities of Long Beach and Lakewood. The Southern California Association of Governments (SCAG) projects net growth of up to approximately 49,148 residents and 26,398 employees for the City of Long Beach by 2020.[470,471] The City of Lakewood is forecasted to include a net increase of up to approximately 2,267 additional residents and 2,743 employees by 2020.[472,473] These forecasts take into account planned or reasonably foreseeable development (such as the related projects)

[470] *SCAG Regional Transportation Plan, 2001.*

[471] *Based on these projections and using standard employment factors, an estimated 9.7 million square feet of non-residential floor area could be constructed.*

[472] *SCAG Regional Transportation Plan, 2001.*

[473] *Based on these projections and using standard employment factors, an estimated 1.4 million square feet of non-residential floor area could be developed.*

within each jurisdiction. The projected growth will result in a demand for additional electricity and natural gas, as discussed below.

(1) Electricity

Based on consumption factors derived from typical utility design criteria and standard energy consumption guidelines established by the Energy Information Administration, preliminary estimates indicate that future projected growth within the Cities of Long Beach and Lakewood will generate an additional peak electrical demand of approximately 121 MW by project buildout, with estimated annual consumption of approximately 715,631 MWh. This additional peak demand represents approximately 0.48 percent of that forecast by the CEC for SCE's service area in 2012; the cumulative annual electricity consumption represents approximately 0.57 percent of the SCE service area forecast. Given that cumulative growth of this magnitude is accounted for in the CEC's projections, and based on the number of major power plants recently completed or under construction throughout the State, including in southern California, sufficient electricity supplies are anticipated to be available to serve future development through 2020 and beyond. Future projects will be subject to Title 24 requirements and will be evaluated on an individual basis to determine the need for specific distribution infrastructure improvements. Thus, the project will not contribute to significant cumulative impacts associated with electricity.

(2) Natural Gas

Using consumption factors established by the SCAQMD, rough estimates indicate that future forecasted growth within the Cities of Long Beach and Lakewood will generate an additional natural gas demand of approximately 171.3 million cu.ft./mo. by project buildout. This additional demand represents approximately 3.6 percent of LBE's total delivery capacity. Since LBE would only supply the Long Beach portion of cumulative development and SoCal Gas would service development in Lakewood, the estimated future growth would account for even less of the total delivery capacity in the area. As discussed above, SoCal Gas has increased its gas receiving capability by 10.7 percent since 2000, with plans to increase capacity by 22 percent by 2012 and to increase storage capacity at two gas storage fields. In addition, the CEC projects sufficient natural gas supplies throughout the State well into the future. Considering the number of major expansion projects for natural gas transmission and storage facilities that are currently planned or underway, sufficient gas supplies and infrastructure capacity are anticipated to be available to serve future development through 2020 and beyond. All development projects will be subject to Title 24 requirements and will be evaluated on a case-by-case

basis to determine the need for specific distribution infrastructure improvements. Thus, the project will not contribute to significant cumulative impacts associated with natural gas.

4. MITIGATION MEASURES

Although the preceding analysis indicates that the project will not result in a significant impact related to energy, the following mitigation measures are provided to ensure that on-site electricity and natural gas system improvements are implemented to the satisfaction of SCE and LBE.

V.M.4-1 The installation of new utility infrastructure and underground substructures shall be coordinated with PacifiCenter development and on-site street improvements. New electricity and natural gas facilities shall utilize current design, construction, and operating specifications and shall be installed per the construction standards and tariffs of Southern California Edison and Long Beach Energy, respectively.

Monitoring Phase: Construction

Enforcement Agency: Southern California Edison and Long Beach Energy

Monitoring Agency: Southern California Edison and Long Beach Energy

Action Indicating Compliance: Approval of Utility Plans

V.M.4-2 During project development, the project Applicant shall coordinate with Southern California Edison who will construct a new electric substation on-site or ensure that adequate infrastructure capacity is otherwise provided. The precise location of the substation shall be determined based on input from Southern California Edison. Refer to Figure 8 on page 124 in Section III, Project Description, of this EIR for an illustration of potential areas within the site that may be utilized for the substation.

Monitoring Phase: Construction

Enforcement Agency: Southern California Edison

Monitoring Agency: Southern California Edison

Action Indicating Compliance: Confirmation by Southern California Edison

V.M.4-3 The installation of gas meters shall be completed in accordance with the specifications of Long Beach Energy and to the extent feasible, gas meters shall be installed outside.

Monitoring Phase: Construction

Enforcement Agency: Long Beach Energy

Monitoring Agency: Long Beach Energy

Action Indicating Compliance: Approval of Utility Plans

5. SIGNIFICANCE AFTER MITIGATION

No significant energy-related impacts will result due to project implementation.